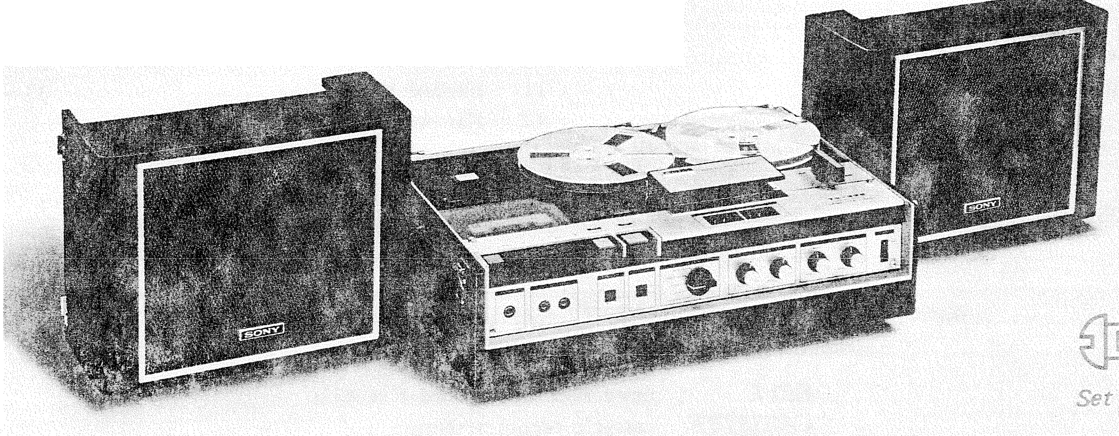
TC-330

General Export Model



Set using ISO screws

SPECIFICATIONS

Power Requirements:	AC 100, 110, 117, 125, 220 and 240V with Voltage Selector, 50/60 Hz 45W
Track System:	Four-track 2-channel stereo (open reel and cassette)
Reel Size:	7" (18 cm) maximum (open reel)
Cassette:	SONY tape cassettes C-60, C-90, C120 or equivalent
Tape Speed:	Reel 7½ ips, 3¾ ips and 1⅞ ips (19 cm/s, 9.5 cm/s and 4.8 cm/s) Cassette 1⅞ ips (4.8 cm/s)
Recording Time:	Reel (with 1,800 ft tape) tape speed — four-track stereo 7½ ips (19 cm/s) 1.5 hrs 3¾ ips (9.5 cm/s) 3 hrs 1⅞ ips (4.8 cm/s) 6 hrs Cassette (with C-60) 1.0 hr (with C-90) 1.5 hrs (with C-120) 2.0 hrs
Frequency Response:	Reel 30 ~ 18,000 Hz at 7½ ips (19 cm/s) 30 ~ 13,000 Hz at 3¾ ips (9.5 cm/s) 30 ~ 7,000 Hz at 1⅞ ips (4.8 cm/s) Cassette 50 ~ 10,000 Hz
Signal-to-Noise Ratio:	Reel 50 dB or better Cassette 45 dB or better
Flutter and Wow:	Reel less than 0.12% at 7½ ips (19 cm/s) Cassette less than 0.2%
Recording Bias Frequency:	85 kHz
Power Output:	5W maximum per channel
Inputs:	Two MIC inputs Impedance: 600 Ω Maximum sensitivity: 0.19 mV (-72 dB) Two AUX INputs Impedance: 100 kΩ Maximum sensitivity: 60.0 mV (-22 dB) Two PHONO INputs Impedance: 65 kΩ Maximum sensitivity: 1.1 mV (-57 dB) REC/PB connector Impedance: 4 kΩ Maximum sensitivity: 4.8 mV (-44 dB)
Outputs:	Two LINE OUTputs Impedance: 100 kΩ Output level: 0.44V (-5 dB) Two SPEAKER outputs Impedance: 8 Ω Output level: 2.83V (+11.2 dB) HEADPHONE output Impedance: 8 Ω Output level: 0.11V (-16.5 dB)
Speaker:	Two 5" (130 mm) dynamic speakers Impedance: 8 Ω
Semiconductors:	25 transistors and 5 diodes
Dimensions:	$21\frac{3}{16}$ (W) × $11\frac{13}{16}$ (H) × $13\frac{7}{8}$" (D) (538 × 300 × 352 mm)
Weight:	43 lb (19.5 kg)

SONY®

SERVICE MANUAL

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Note: *"REEL"* and *"CASSETTE"* described in this Service Manual mean the following:

REEL : open reel tape recorder section
CASSETTE: cassette recorder section

1. GENERAL DESCRIPTION

The SONY Model TC-330 is a new type stereo tape recorder which is a combination of an open reel and a cassette recorders.

The recorder provides the following outstanding features:

a. SOURCE selector, MIC, AUX, PHONO, CASSETTE and REEL.
b. Dubbing from REEL to CASSETTE or vice versa can be made easily.
c. The all-silicon transistor power amplifier of ITL and OTL for low distortion and high power output (five watts each of L and R channels).
d. NOISE SUPPRESS switch for low noise recording and playback.
e. Separate TREBLE and BASS control
f. The recorder can be also used as a public-address system.

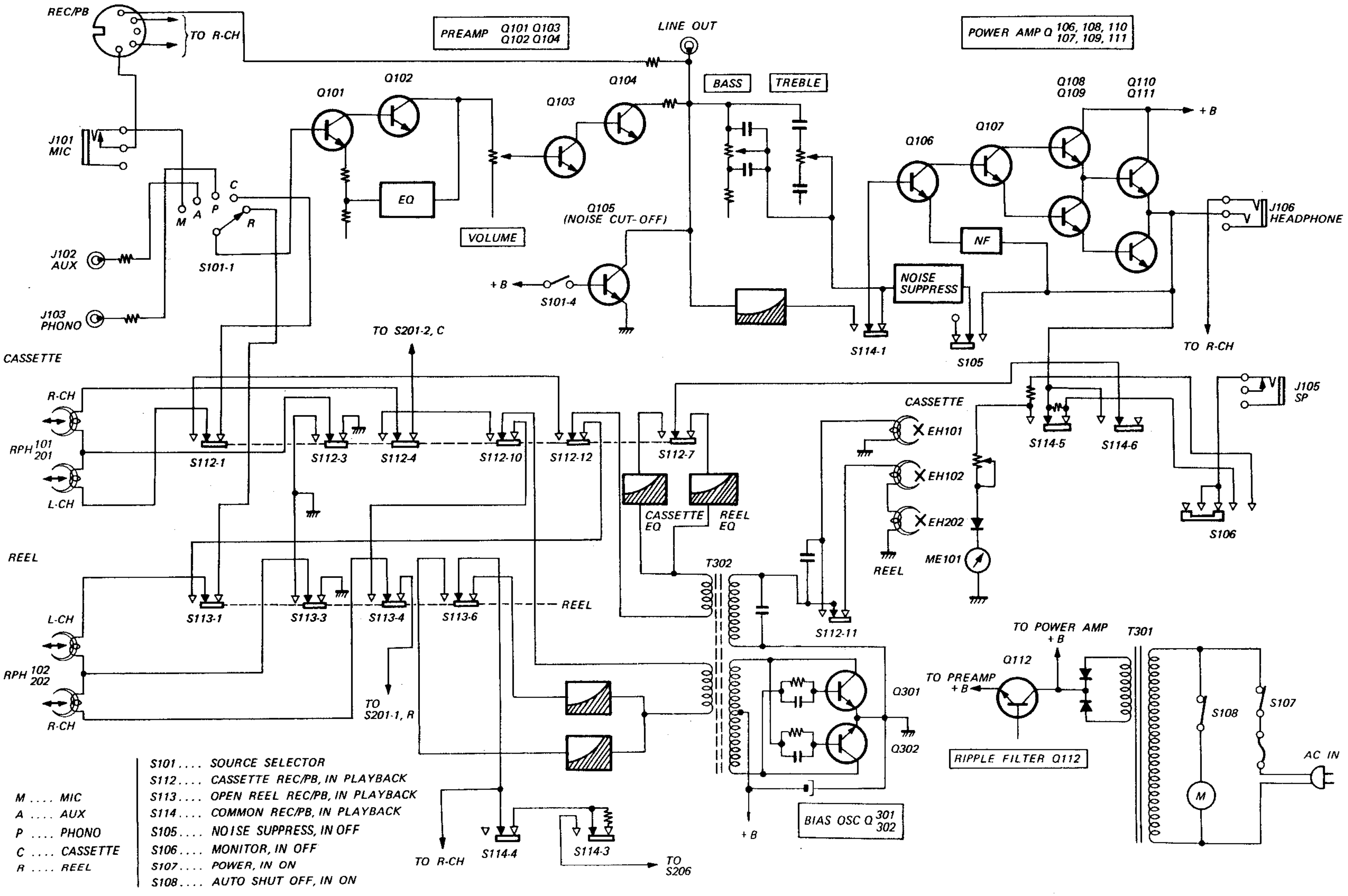
for REEL

- Retractable pinch roller makes easy tape threading.
- Four digit tape index counter
- Scrape flutter filter roller is located between the erase and record/playback heads. It prevents the tape from developing longitudinal vibrations which can result in tape squeal or frequency modulated distortion of the tape movement across the heads.

for CASSETTE

- Easy operation with piano-key type function selector.
- Tape-end lamp indicates the tape end with a sensing foil.
- Pocket for a tape cassette is very convenience to continue a recording or a playback replacing with other tape cassette.

2. BLOCK DIAGRAM

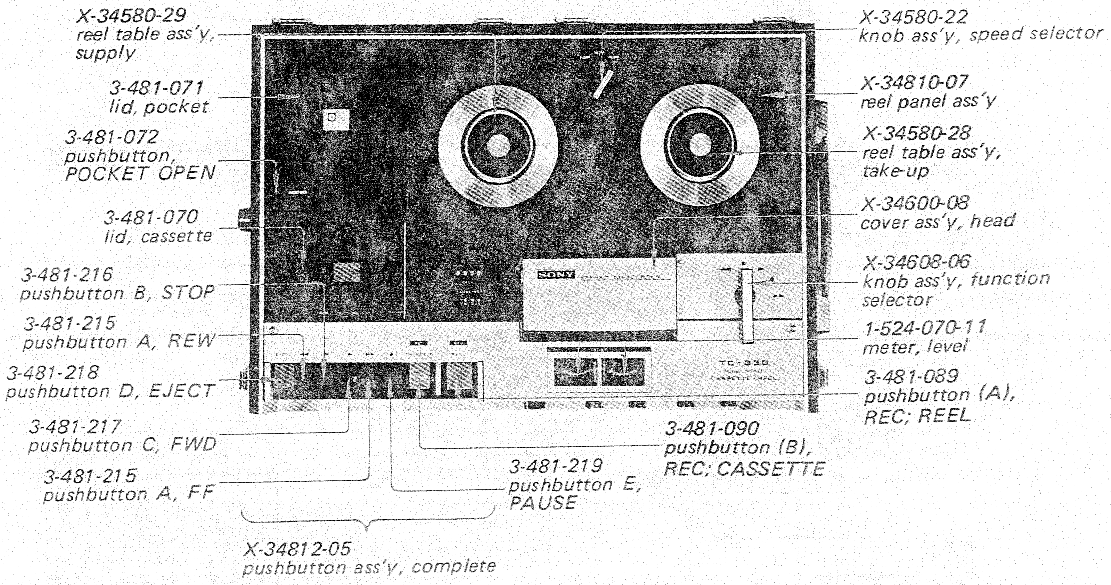

REC/PB
TO R-CH
PREAMP Q101 Q103 Q102 Q104
LINE OUT
BASS
TREBLE
POWER AMP Q 106, 108, 110 107, 109, 111
J101 MIC
Q101
Q102
Q103
Q104
EQ
VOLUME
Q105 (NOISE CUT-OFF)
C
P
A
M
R
S101-1
S101-4
+B
J102 AUX
J103 PHONO
Q106
Q107
Q108 Q109
Q110 Q111
NF
NOISE SUPPRESS
S114-1
S105
TO R-CH
J106 HEADPHONE
J105 SP
CASSETTE
R-CH
RPH 101 201
L-CH
TO S201-2, C
S112-1
S112-3
S112-4
S112-10
S112-12
S112-7
CASSETTE EQ
REEL EQ
REEL
RPH 102 202
S113-1
S113-3
S113-4
S113-6
TO S201-1, R
T302
EH101
EH102
EH202
ME101
S114-5
S114-6
S106
S112-11
Q301
Q302
BIAS OSC Q 301 302
TO POWER AMP +B
TO PREAMP +B
Q112
RIPPLE FILTER Q112
T301
S108
S107
M
AC IN
TO R-CH
S114-4
S114-3
TO S206

M .... MIC
A .... AUX
P .... PHONO
C .... CASSETTE
R .... REEL

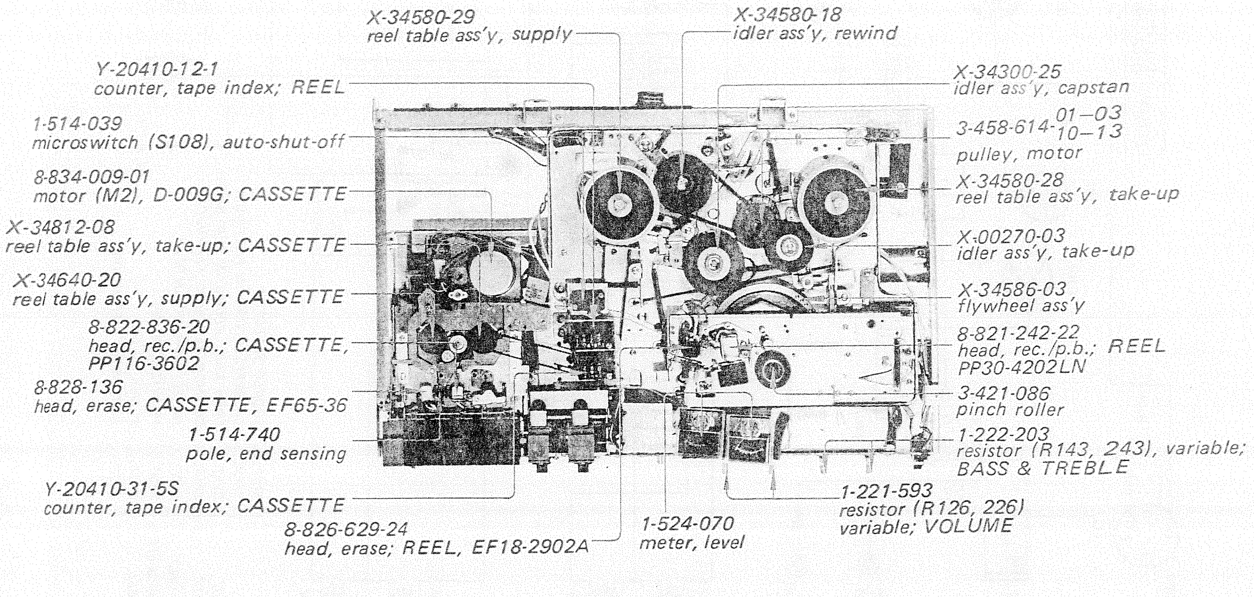
S101.... SOURCE SELECTOR
S112.... CASSETTE REC/PB, IN PLAYBACK
S113.... OPEN REEL REC/PB, IN PLAYBACK
S114.... COMMON REC/PB, IN PLAYBACK
S105.... NOISE SUPPRESS, IN OFF
S106.... MONITOR, IN OFF
S107.... POWER, IN ON
S108.... AUTO SHUT OFF, IN ON

3. MAJOR PARTS LOCATION

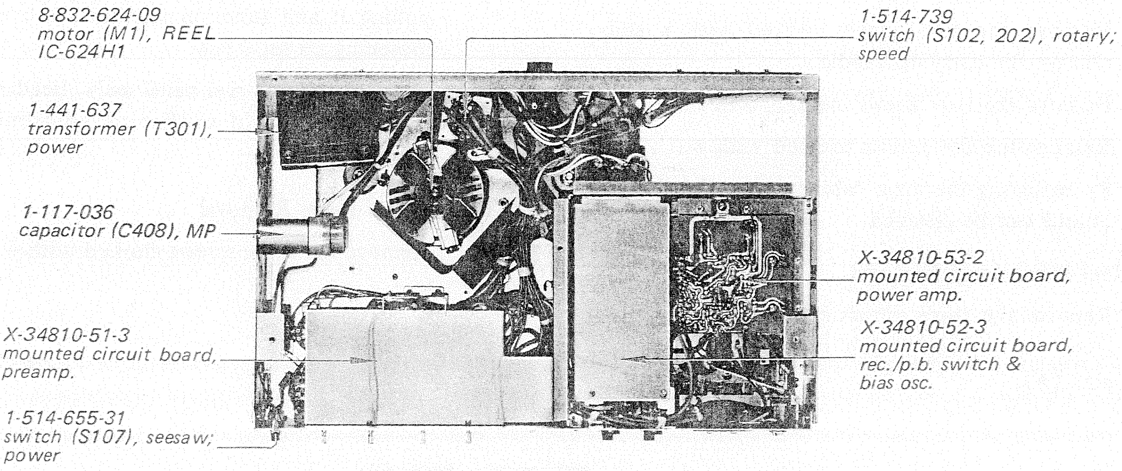
3-1. Cabinet Top View


X-34580-29
reel table ass'y, supply
3-481-071
lid, pocket
3-481-072
pushbutton, POCKET OPEN
3-481-070
lid, cassette
3-481-216
pushbutton B, STOP
3-481-215
pushbutton A, REW
3-481-218
pushbutton D, EJECT
3-481-217
pushbutton C, FWD
3-481-215
pushbutton A, FF
X-34812-05
pushbutton ass'y, complete
3-481-219
pushbutton E, PAUSE
3-481-090
pushbutton (B), REC; CASSETTE
X-34580-22
knob ass'y, speed selector
X-34810-07
reel panel ass'y
X-34580-28
reel table ass'y, take-up
X-34600-08
cover ass'y, head
X-34608-06
knob ass'y, function selector
1-524-070-11
meter, level
3-481-089
pushbutton (A), REC; REEL
SONY
TC-330

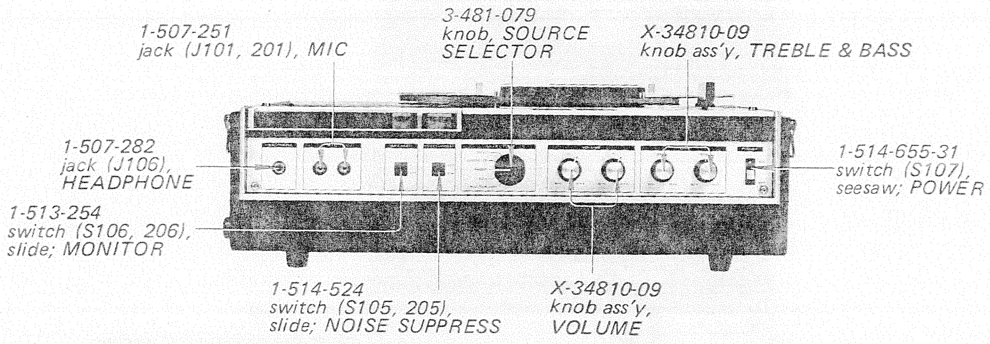
3-2. Chassis Top View


X-34580-29
reel table ass'y, supply
Y-20410-12-1
counter, tape index; REEL
1-514-039
microswitch (S108), auto-shut-off
8-834-009-01
motor (M2), D-009G; CASSETTE
X-34812-08
reel table ass'y, take-up; CASSETTE
X-34640-20
reel table ass'y, supply; CASSETTE
8-822-836-20
head, rec./p.b.; CASSETTE, PP116-3602
8-828-136
head, erase; CASSETTE, EF65-36
1-514-740
pole, end sensing
Y-20410-31-5S
counter, tape index; CASSETTE
8-826-629-24
head, erase; REEL, EF18-2902A
1-524-070
meter, level
1-221-593
resistor (R126, 226) variable; VOLUME
X-34580-18
idler ass'y, rewind
X-34300-25
idler ass'y, capstan
3-458-614-01—03 10—13
pulley, motor
X-34580-28
reel table ass'y, take-up
X-00270-03
idler ass'y, take-up
X-34586-03
flywheel ass'y
8-821-242-22
head, rec./p.b.; REEL PP30-4202LN
3-421-086
pinch roller
1-222-203
resistor (R143, 243), variable; BASS & TREBLE

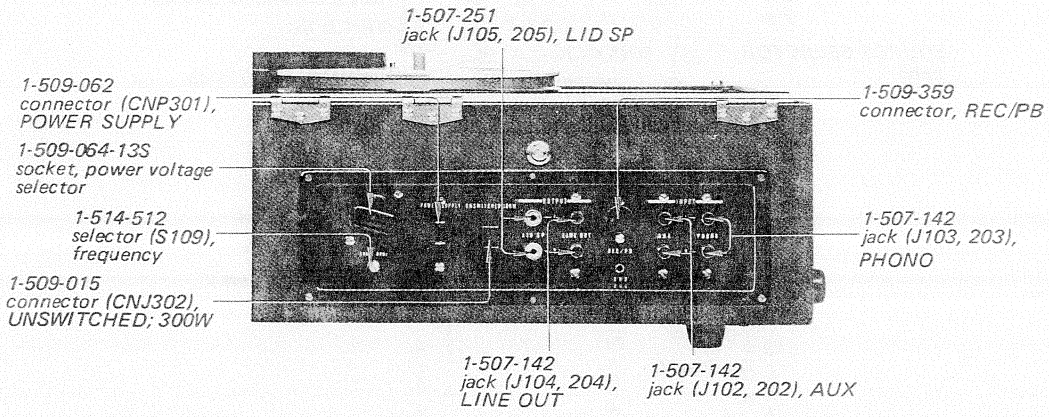
3-3. Chassis Bottom View


8-832-624-09
motor (M1), REEL
IC-624H1
1-514-739
switch (S102, 202), rotary;
speed
1-441-637
transformer (T301),
power
1-117-036
capacitor (C408), MP
X-34810-53-2
mounted circuit board,
power amp.
X-34810-51-3
mounted circuit board,
preamp.
X-34810-52-3
mounted circuit board,
rec./p.b. switch &
bias osc.
1-514-655-31
switch (S107), seesaw;
power

3-4. Control Panel Front View


1-507-251
jack (J101, 201), MIC
3-481-079
knob, SOURCE
SELECTOR
X-34810-09
knob ass'y, TREBLE & BASS
1-507-282
jack (J106),
HEADPHONE
1-514-655-31
switch (S107),
seesaw; POWER
1-513-254
switch (S106, 206),
slide; MONITOR
1-514-524
switch (S105, 205),
slide; NOISE SUPPRESS
X-34810-09
knob ass'y,
VOLUME

3-5. Jack Plate Front View


1-507-251
jack (J105, 205), LID SP
1-509-062
connector (CNP301),
POWER SUPPLY
1-509-359
connector, REC/PB
1-509-064-13S
socket, power voltage
selector
1-514-512
selector (S109),
frequency
1-507-142
jack (J103, 203),
PHONO
1-509-015
connector (CNJ302),
UNSWITCHED; 300W
1-507-142
jack (J104, 204),
LINE OUT
1-507-142
jack (J102, 202), AUX

4. DISASSEMBLY

1. Main Cabinet Ass'y Removal

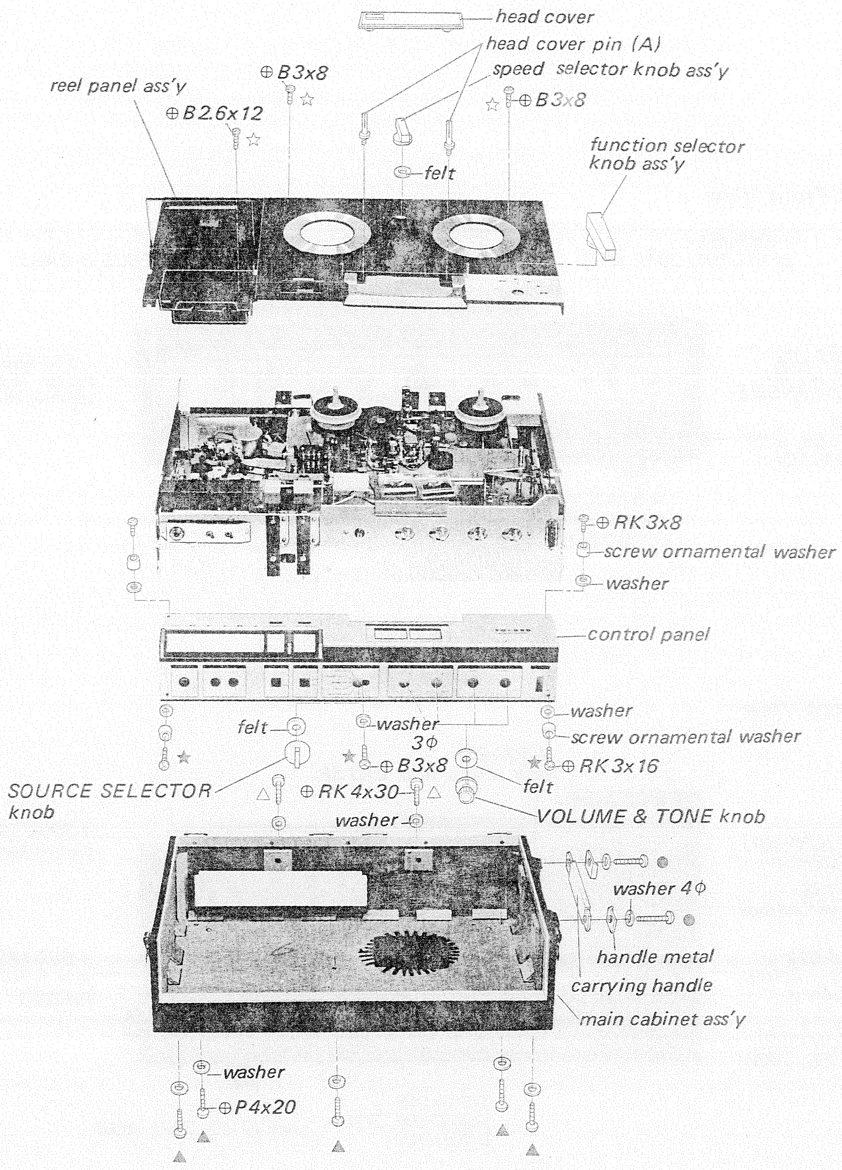
1. Remove the two screws marked with ● and remove the carrying handle.
2. Remove the two screws marked with △.
3. Remove the five screws marked with ▲.
4. By removing the main cabinet ass'y, the circuit boards can be checked.

2. Reel Panel Ass'y Removal

1. Remove the three screws marked with ☆, head cover by pulling it and the two head cover pins (A).
2. Remove the speed selector knob ass'y by pulling it and function selector knob ass'y by loosening its set screw.
3. By removing the reel panel ass'y, head replacement and some of mechanical adjustment can be made.

3. Control Panel Removal

Remove the three screws marked with ★.


head cover
head cover pin (A)
speed selector knob ass'y
⊕B3x8 ☆
reel panel ass'y
⊕B3x8 ☆
⊕B2.6x12 ☆
function selector knob ass'y
felt
⊕RK3x8
screw ornamental washer
washer
control panel
washer
screw ornamental washer
★ ⊕RK3x16
felt
washer
3φ
★ ⊕B3x8
★
SOURCE SELECTOR knob
△ ⊕RK4x30 △
washer
felt
VOLUME & TONE knob
●
washer 4φ
●
handle metal
carrying handle
main cabinet ass'y
washer
⊕P4x20
▲
▲
▲
▲
▲

5. ADJUSTMENTS

5-1. Mechanical Adjustment

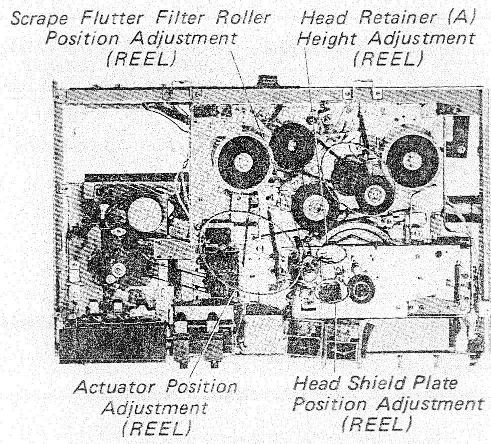
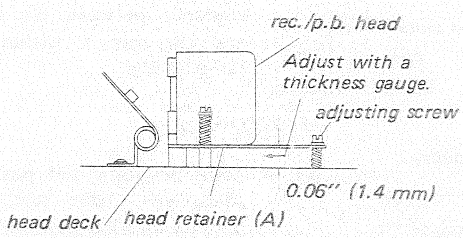

Scrape Flutter Filter Roller Position Adjustment (REEL)
Head Retainer (A) Height Adjustment (REEL)
Actuator Position Adjustment (REEL)
Head Shield Plate Position Adjustment (REEL)

Fig. 5-1-1 Adjusting parts location

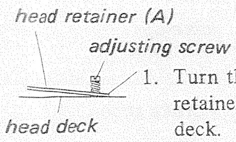
Head Retainer (A) Height Adjustment (REEL)

– in STOP mode –

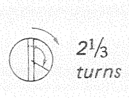

rec./p.b. head
Adjust with a thickness gauge.
adjusting screw
0.06" (1.4 mm)
head deck
head retainer (A)

Apply lock paint to the adjusting screw.

Other Adjusting Method


head retainer (A)
adjusting screw
head deck

1. Turn the adjusting screws until the head retainer (A) is in contact with the head deck.

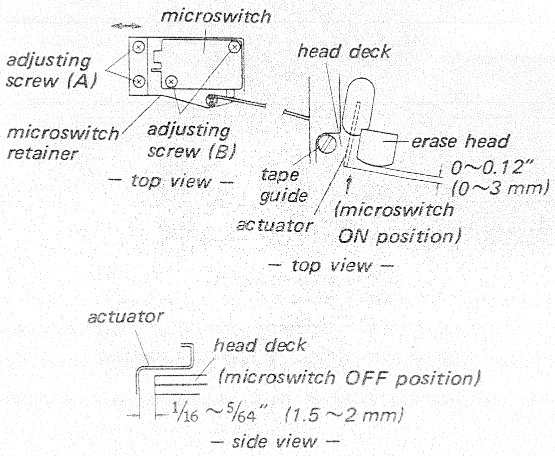


2. Turn the adjusting screw clockwise 2⅓ turns from the head retainer (A) position shown above.

3. Apply lock paint to the adjusting screw.

Actuator Position Adjustment (REEL)

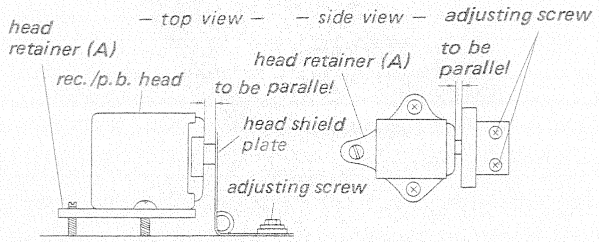
– in STOP mode –


microswitch
adjusting screw (A)
head deck
microswitch retainer
adjusting screw (B)
erase head
– top view –
tape guide
0~0.12" (0~3 mm)
actuator
(microswitch ON position)
– top view –
actuator
head deck
(microswitch OFF position)
1/16 ~ 5/64" (1.5 ~ 2 mm)
– side view –

1. Loosen the adjusting screws (A) and adjust the microswitch retainer position so that the actuator comes in the mid position between the erase head and the tape guide.
2. Loosen the adjusting screws (B) and adjust the microswitch position to obtain the actuator position as shown when the actuator is pushed in the direction shown.
3. Apply lock paint to the adjusting screws.

Head Shield Plate Position Adjustment (REEL)

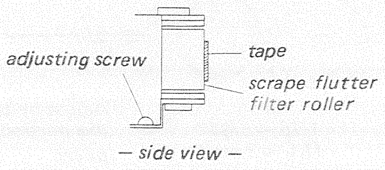
– in FWD mode –


head retainer (A)
– top view –
– side view –
adjusting screw
rec./p.b. head
head retainer (A)
to be parallel
to be parallel
head shield plate
adjusting screw

Loosen the adjusting screws and adjust so that the head shield plate is in parallel with the rec./p.b. head.

Scrape Flutter Filter Roller Position Adjustment (REEL)

– in FWD mode –


adjusting screw
tape
scrape flutter filter roller
– side view –

Thread a tape, place the set in FWD mode with 1 7/8 ips (4.8 cm/s) speed, loosen the adjusting screw and adjust the scrape flutter filter roller position so that the tape comes completely contact with it.

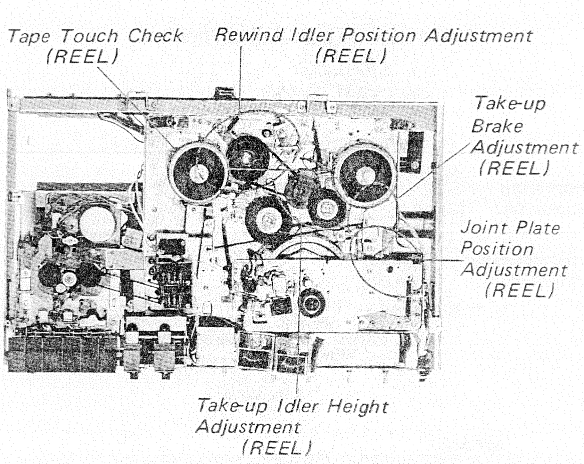
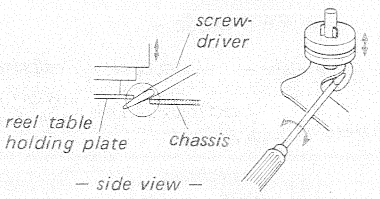

Tape Touch Check
(REEL)
Rewind Idler Position Adjustment
(REEL)
Take-up
Brake
Adjustment
(REEL)
Joint Plate
Position
Adjustment
(REEL)
Take-up Idler Height
Adjustment
(REEL)

Fig. 5-1-2 Adjusting parts location

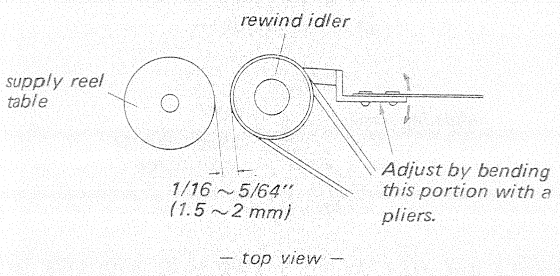
Tape Touch Check
(REEL)
– FF, FWD & REW modes –

Thread a tape with correctly shaped reel and check that if the tape edge is in contact with the reel at its beginning and end in FF, FWD and REW modes.

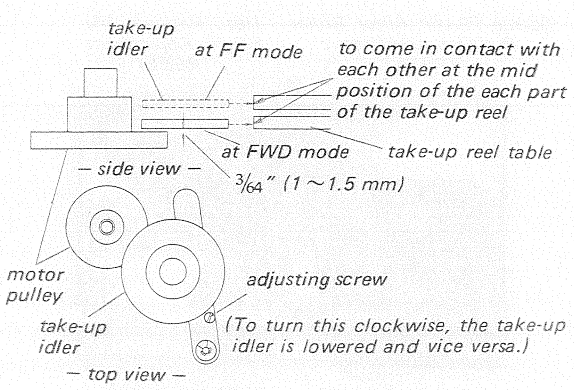
If the tape edge comes in contact with the reel, adjust the reel table position with a screwdriver as shown.


screw-
driver
reel table
holding plate
chassis
– side view –

Rewind Idler Position Adjustment
(REEL)
– in STOP mode –

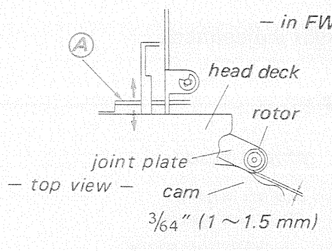

rewind idler
supply reel
table
1/16 ~ 5/64″
(1.5 ~ 2 mm)
Adjust by bending
this portion with a
pliers.
– top view –

Take-up Idler Height Adjustment
(REEL)
– in FF and FWD modes –


take-up
idler
at FF mode
to come in contact with
each other at the mid
position of the each part
of the take-up reel
at FWD mode
take-up reel table
– side view –
3/64″ (1 ~ 1.5 mm)
motor
pulley
adjusting screw
take-up
idler
(To turn this clockwise, the take-up
idler is lowered and vice versa.)
– top view –

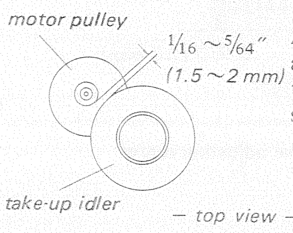
Joint Plate Position Adjustment
(REEL)
– in FWD and STOP modes –

– in FWD mode –


Ⓐ
head deck
rotor
joint plate
– top view –
cam
3/64″ (1 ~ 1.5 mm)

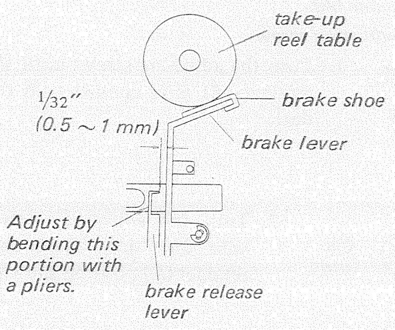
Bend the portion Ⓐ in the direction shown by the arrow with a pliers so that the clearance between the rotor and the cam is within the range shown.

– in STOP mode –


motor pulley
1/16 ~ 5/64″
(1.5 ~ 2 mm)
take-up idler
– top view –

After the joint rod position adjustment, make sure that the take-up idler position is as shown in the figure.

Take-up Brake Adjustment
(REEL)
– in STOP mode –


take-up
reel table
1/32″
(0.5 ~ 1 mm)
brake shoe
brake lever
Adjust by
bending this
portion with
a pliers.
brake release
lever

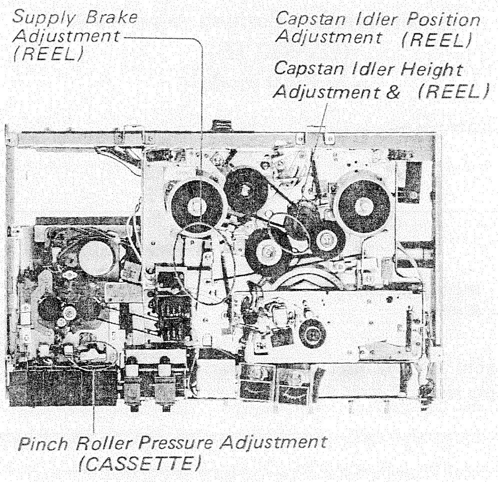
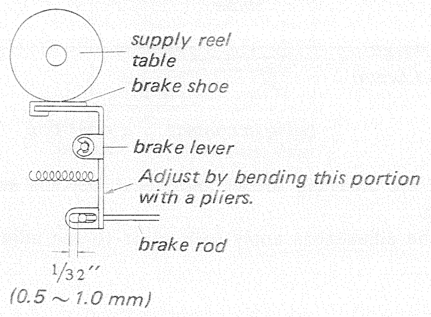

Supply Brake Adjustment (REEL)
Capstan Idler Position Adjustment (REEL)
Capstan Idler Height Adjustment & (REEL)
Pinch Roller Pressure Adjustment (CASSETTE)

Fig. 5-1-3 Adjusting parts location

Supply Brake Adjustment (REEL)

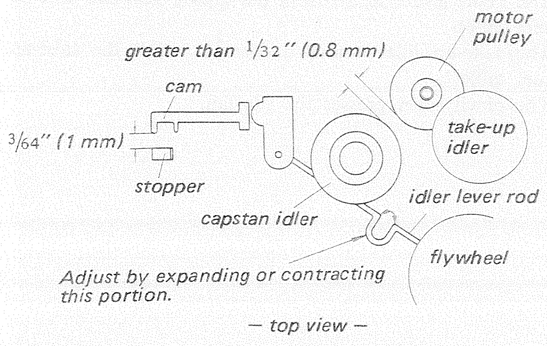
– in STOP mode –


supply reel table
brake shoe
brake lever
Adjust by bending this portion with a pliers.
brake rod
1/32″
(0.5 ~ 1.0 mm)

Capstan Idler Position Adjustment (REEL)

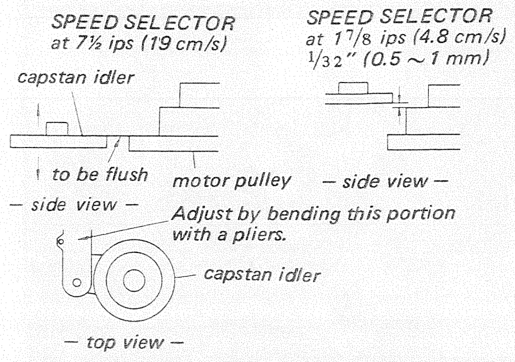
– in STOP mode –

(Speed Selector at 7½ ips, 19 cm/s)


motor pulley
greater than 1/32″ (0.8 mm)
cam
3/64″ (1 mm)
stopper
take-up idler
idler lever rod
capstan idler
flywheel
Adjust by expanding or contracting this portion.
– top view –

Capstan Idler Height Adjustment (REEL)

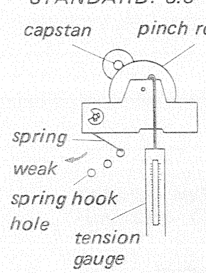
– in STOP mode –


SPEED SELECTOR at 7½ ips (19 cm/s)
SPEED SELECTOR at 1⅞ ips (4.8 cm/s)
1/32″ (0.5 ~ 1 mm)
capstan idler
to be flush
motor pulley
– side view –
– side view –
Adjust by bending this portion with a pliers.
capstan idler
– top view –

Pinch Roller Pressure Adjustment (CASSETTE)

– in FWD mode –

STANDARD: 8.8 ~ 11.3 oz (250 ~ 320 g)


capstan
pinch roller
spring
weak
spring hook hole
tension gauge

Place the set in FWD mode, pull the tension gauge and read it just when the pinch roller departs from the capstan. Adjust the pinch roller pressure by changing the spring hook hole.

Torque Measurement (CASSETTE)

Torque should be as follows.

FWD torque: 0.63 ~ 0.91 oz·inch
(45 ~ 65 g·cm)
FF or REW torque: 0.85 ~ 2.11 oz·inch
(60 ~ 150 g·cm)

– Continued to next page –

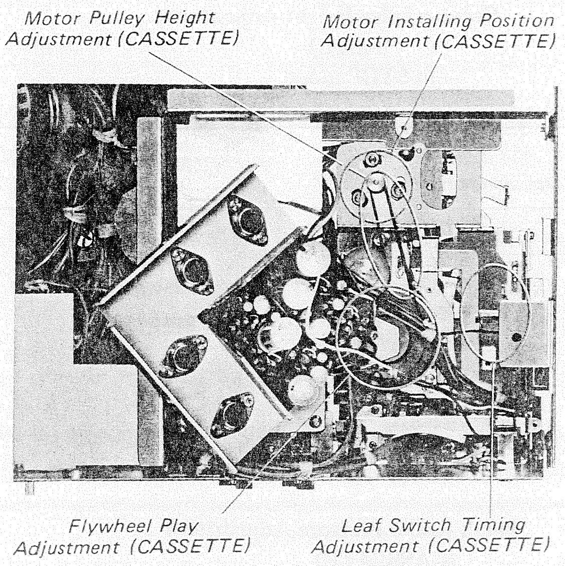
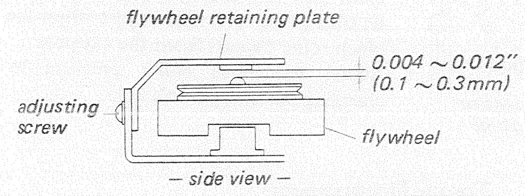

Motor Pulley Height Adjustment (CASSETTE)
Motor Installing Position Adjustment (CASSETTE)
Flywheel Play Adjustment (CASSETTE)
Leaf Switch Timing Adjustment (CASSETTE)

Fig. 5-1-4 Adjusting parts location

Flywheel Play Adjustment (CASSETTE)

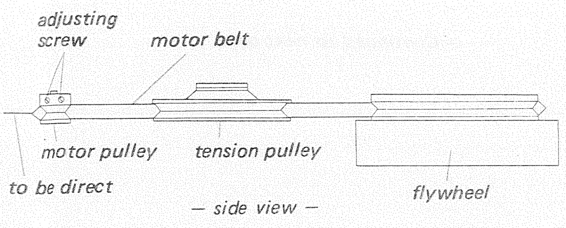
– in STOP mode –


flywheel retaining plate
0.004 ~ 0.012"
(0.1 ~ 0.3mm)
adjusting screw
flywheel
– side view –

Loosen the adjusting screw and adjust the flywheel retaining plate position.

Motor Pulley Height Adjustment (CASSETTE)

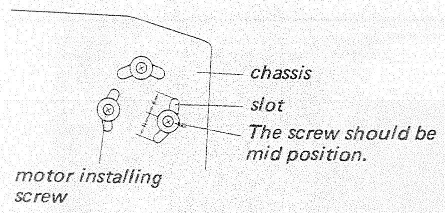
– in FWD mode –


adjusting screw
motor belt
motor pulley
tension pulley
to be direct
– side view –
flywheel

Loosen the adjusting screws and adjust the motor pulley height so that the motor belt operates in a straight line.
Note: Put on the motor belt making the smooth side inside.

Motor Installing Position Adjustment (CASSETTE)

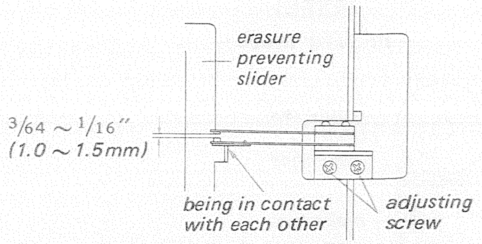
– in FWD mode –


chassis
slot
The screw should be mid position.
motor installing screw

(To avoid for the belt coming in contact with the motor installing screws.)

Leaf Switch Timing Adjustment (CASSETTE)

– in STOP mode –


erasure preventing slider
3/64 ~ 1/16"
(1.0 ~ 1.5mm)
being in contact with each other
adjusting screw

1. Loosen the adjusting screws and adjust the leaf switch position.
2. After the adjustment apply lock paint to the adjusting screws.

Pinch Roller, Take-up Idler and Brake Timing Check (CASSETTE)

The following operations must be made at the same time, when pushing the FWD button.

a. The brake levers depart from the supply reel and take-up reel tables.
b. The take-up idler comes in contact with the take-up reel table.
c. The pinch roller presses the capstan.

5-2. Electrical Adjustment

Preface for the Adjustment

1. Standard input level is as follows unless otherwise specified.

Input	MIC	AUX	PHONO	REC/PB Connector
Signal Source Impedance	600 Ω	10 kΩ	300 Ω	80 kΩ
Input Level	0.775mV (-60 dB)	0.243 V (-10 dB)	4.3mV (-45 dB)	17.2mV (-33 dB)

Where 0 dB = 0.775 V

2. Input Connection

With a balanced attenuator

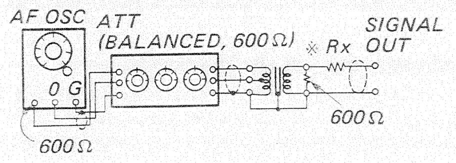


Fig. 5-2-1 Input connection

With an unbalanced attenuator

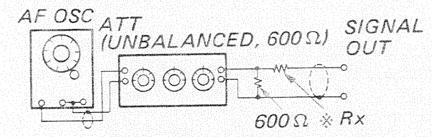


Fig. 5-2-2 Input connection

	MIC	AUX	PHONO	REC/PB Connector
Signal Source Impedance	600 Ω	10 kΩ	300 Ω	80 kΩ
※ Rx	300 Ω	10 kΩ	0	80 kΩ

3. Standard output level in the playback mode is as follows unless otherwise specified.

Output	LINE OUT	SP
Load	100 kΩ	8 Ω
Output Level	0.433 V (-5 dB)	2.8 V (+11.2dB)

Where 0 dB = 0.775 V

Note: When measuring the output level, use a VTVM. If the LINE OUTput level is measured with an ac voltmeter of low input impedance (lower than 1 MΩ), the reading is almost the same with 100 kΩ load resistor or with no 100 kΩ load resistor.

4. The variable resistor and switch positions should be set as follows unless otherwise specified.

a. VOL control

Play back the 2nd tone (400 Hz) of SONY alignment tape (or the 1st tone, 400 Hz, of SONY alignment tape) with the BASS and TREBLE controls set at mechanically mid position and with 7½ ips (19 cm/s) tape speed, and set the VOL control to obtain the LINE OUT level of 0.433 V (-5 dB).

b. BASS & TREBLE controls

Mechanically mid position

c. SP MONITOR switch

"2" position

d. NOISE SUPRESS switch

"OFF" position

e. SOURCE SELECTOR switch

Set in accordance with the each adjustment.

5. The each SONY alignment tape is recorded as follows.

Tape \ Tone	1st	2nd	3rd	4th	Remarks
J-19-K1	10kHz 0.243V (-10dB)	400Hz 0.775V (0 dB)			7½ ips (19cm/s) REEL
J-19-F1	10kHz 0.243V (-10dB)	400Hz 0.775V (0 dB)	400Hz 0.243V (-10dB)	10kHz 0.243V (-10dB)	7½ ips (19cm/s) REEL
Tape \ Tone	5th	6th	7th		Remarks
J-19-F1	7 kHz 0.243V (-10dB)	80 Hz 0.243V (-10dB)	40 Hz 0.243V (-10dB)		7½ ips (19cm/s) REEL

Tape	Tone	Remarks
P-4-A81	6,300 Hz 0.243V (-10dB)	1⁷/₈ ips (4.8 cm/s) CASSETTE
P-4-L81	333 Hz 0.775V (0 dB)	1⁷/₈ ips (4.8cm/s) CASSETTE

6. a. Before making the adjustment or measurement, be sure to clean the heads with cloth or swap dampened with denatured alcohol and to demagnetize the record/playback head with a head demagnetizer (SONY HE-2).

b. The blank tapes used in this adjustment are as follows.

SONY super 150 (REEL)
SONY C-60 (CASSETTE)

7. This adjustment or measurement should be made in numerical order as follows.

Adjustment & Measurement	Order	
	REEL	CASSETTE
1. Tape Path Adjustment	1	———
2. Rec./PB Head Azimuth Adjustment	2	1
3. Phase Check	3	2
4. PB Frequency Response Measurement	4	3
5. PB Signal-to-Noise Ratio Measurement	5	4
6. Meter Calibration	6	———
7. Recording Bias Adjustment	7	5
8. Recording Level Check	8	6
9. Overall Frequency Response Measurement	9	7
10. Overall Signal-to-Noise Ratio Measurement	10	8
11. Overall Distortion Measurement	11	9
12. Power Amp. Output Level Measurement	12	———
13. Overall Maximum Output Measurement	13	10
14. Noise Suppress Response Check	14	———
15. Bass & Treble Response Check	15	———
16. Dubbing Level Check	16	11
17. Dubbing Signal-to-Noise Ratio Measurement	17	12
18. Crosstalk Check (between tracks)	18	13
19. Crosstalk Check (between channels)	19	14
20. Erase Ratio Measurement	20	15
21. Minimum Input Level Measurement	21	———
22. End Lamp Check	———	16

Adjustment and Measurement

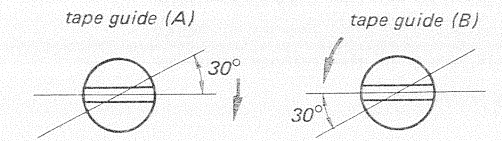
1. Tape Path Adjustment

1) Thread a tape and set the machine in mechanically FWD mode.

2) Turn the tape guide (A) so that the upper edge of the tape and the upper edge of the upper core of erase head are in the same height.

3) Turn the tape guide (B) so that the upper edge of the tape and the upper edge of the core of rec./p.b. head are in the same height.

4) Turn the tape guide (A) clockwise by 30 degrees. Turn the tape guide (B) counterclockwise by 30 degrees.



5) Adjusted tape path is as shown in Fig. 5-2-3.

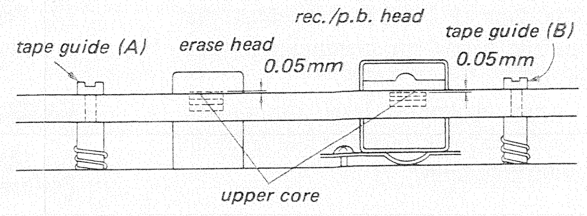


Fig. 5-2-3 Adjusted tape path

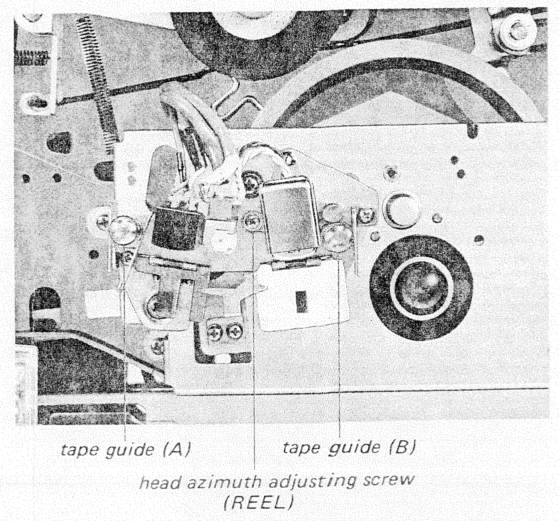


Fig. 5-2-4 Adjusting parts location

2. Rec./P.B. Head Azimuth Adjustment

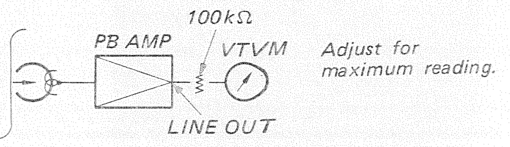


Fig. 5-2-5 Test setup

REEL

(See Fig. 5-2-4).

1) Play back the first tone (10 kHz) of the tape J-19-K1, or the first tone (10 kHz) of the tape J-19-F1. Adjust the azimuth adjusting screw for maximum output level.

2) When the same maximum level cannot be obtained at both channels, take the mid angle of the azimuth adjusting screw.

3) Press the supply reel slightly. Make sure that the output level does not increase more than 1 dB when the tape comes in close contact with the head.

Notes:

1) Clean the head with denatured alcohol before making adjustment.
2) Lock the azimuth adjusting screw with a locking paint after adjustment.
3) Check for the tape pass after adjustment.

1) Play back the tape (P-4-A81), and adjust the azimuth adjusting screw for maximum output level. See Fig. 5-2-5.
2) When the same maximum level cannot be obtained at both channels, take the mid angle of the azimuth adjusting screw.

Notes:
1) Choose the maximum peak of several ones. See Fig. 5-2-6.
2) Check for the tape pass after adjustment.

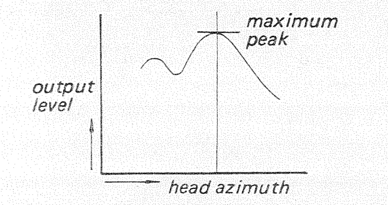


Fig. 5-2-6 Head azimuth adjustment (CASSETTE)

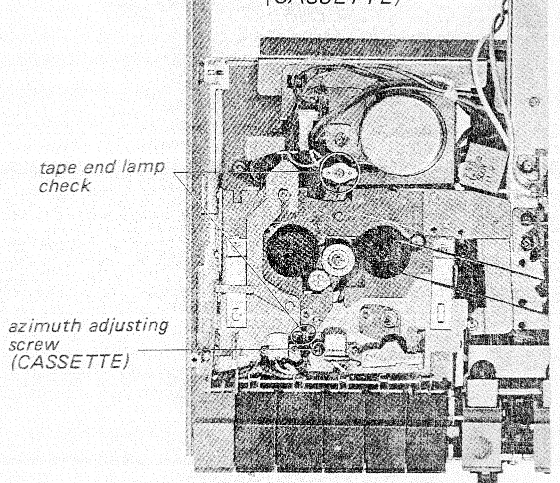

tape end lamp check
azimuth adjusting screw (CASSETTE)

Fig. 5-2-7 Adjusting parts location

3. Phase Check

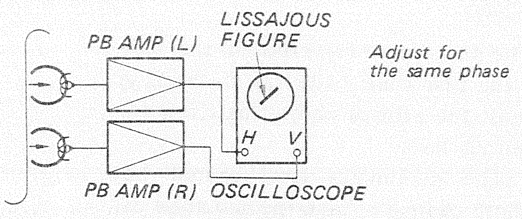

LISSAJOUS FIGURE
PB AMP (L)
Adjust for the same phase
H
V
PB AMP (R)
OSCILLOSCOPE

Fig. 5-2-8 Test setup

REEL

1) Play back the second tone (400Hz) of the tape (J-19-K1), or the second of the J-19-F1. Connect the scope to the speaker output, the horizontal input to channel L and the vertical input to channel R. Observe the Lissajous figure. If the Lissajous figure shows different phases of L and R output signals, adjust the azimuth adjusting screw.

2) Perform the same check at the LINE OUT and the HEADPHONE.

CASSETTE

Play back 333Hz signal of the tape (P-4-L81). Perform the check as in the procedure of the REEL.

4. **Playback Frequency Response Measurement**
(See Fig. 5-2-5 on page 12.)

Specification

(REEL) J-19-F1

Tone	3	4	5	6	7
Freq.	400 Hz	10 kHz	7 kHz	80 Hz	40 Hz
Value	0 dB	+1 dB ~ - 3 dB	+0.5dB ~ - 2.5dB	+6 dB ~ 0 dB	+0.5dB ~ - 6.5dB

J-19-K1

Tone	2	1
Freq.	400 Hz	10 kHz
Value	0 dB	-9 dB ~ -13 dB

(CASSETTE)

Tape	Freq.	Value
P-4-L81	333 Hz	0 dB
P-4-A81	6,300 Hz	-10 dB ~ -15 dB

REEL

1) Play back the tape (J-19-F1). Make sure that the deviation of the playback output level at each frequency shown in the table can be obtained.
2) The deviation only at the 10 kHz can be obtained in use of the tape, J-19-K1.

CASSETTE

Play back the tapes (P-4-L81 and P-4-A81). Make sure that the deviation of the playback output level shown in the table can be obtained.

5. **Playback Signal-to-Noise Ratio Measurement**
(See Fig. 5-2-5 on page 12.)

Specification

REEL	greater than 46 dB
CASSETTE	greater than 46 dB

REEL

Play back the second tone (400 Hz) of the tape (J-19-K1), or the second of the J-19-F1. Read the output level. Set the unit to the playback mode without the tape threaded, and read the level. Make sure the specified difference of the output level between the two can be obtained.

CASSETTE

Play back 333Hz signal of the tape (P-4-L81). Perform the check as in the procedure of the REEL.

6. **Meter Calibration**

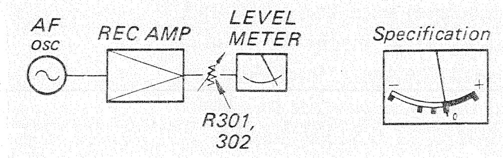

AF osc
REC AMP
LEVEL METER
Specification
R301, 302

Fig. 5-2-9 Test setup

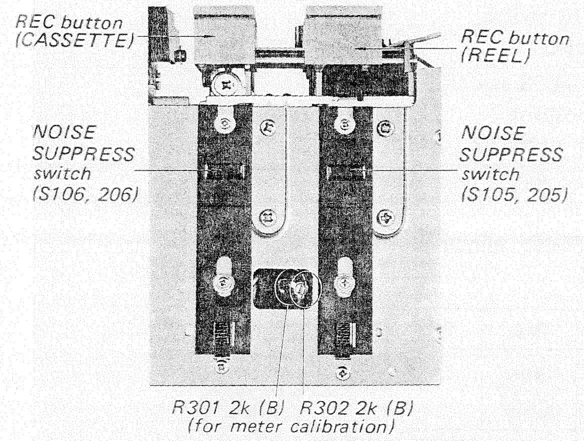

REC button (CASSETTE)
REC button (REEL)
NOISE SUPPRESS switch (S106, 206)
NOISE SUPPRESS switch (S105, 205)
R301 2k (B) R302 2k (B) (for meter calibration)

Fig. 5-2-10 Adjusting parts location

1) Deliver a 1 kHz signal 0.775 mV (-60 dB) to the MIC jack in the Record mode.
2) Adjust R301 and R302 so that the pointer of the level meter reads "0".

7. **Recording Bias Adjustment**

Specification

		bias voltage
REEL	rec./p.b. head:	greater than 20 V
	erase head:	greater than 40 V
CASSETTE	rec./p.b. head:	greater than 18 V
	erase head:	greater than 40 V

REEL

Select the tap of the bias oscillator coil for the specified overall frequency response curve. See Overall Frequency Response Measurement on page 14.

CASSETTE

Perform the same adjustment as in the procedure of the REEL.

8. **Recording Level Check**

REEL

1) Deliver a 1 kHz signal 0.775 mV (-60 dB) to the MIC jack.
2) Record the signal on a blank tape.
3) Play back the tape. Make sure that the specified LINE OUT level can be obtained.

Specification
between 0.305 V (-8 dB) and 0.610 V (-2 dB)

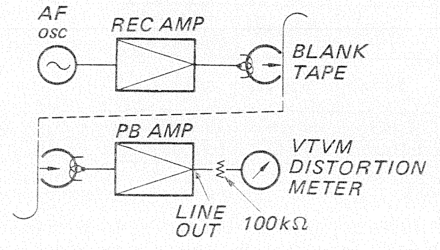

AF osc
REC AMP
BLANK TAPE
PB AMP
VTVM DISTORTION METER
LINE OUT
100kΩ

Fig. 5-2-11 Test setup for the Procedure 8, 9, 10, 11 & 13

CASSETTE

Perform the same adjustment as in the procedure of the REEL.

9. **Overall Frequency Response Measurement**
(See Fig. 5-2-11.)

Specification

Freq. / Speed	1 kHz	18 kHz	13 kHz	10 kHz	7 kHz	5 kHz	100 Hz	30 Hz
7 1/2 ips (19 cm/s)	0 dB	0 dB ~ -15 dB		±3 dB			±3 dB	-12 dB ~ -18 dB
3 3/4 ips (9.5 cm/s)	0 dB		0 dB ~ -15 dB		±3 dB		±3 dB	-14 dB ~ -20 dB
1 7/8 ips (4.8 cm/s)	0 dB				0 dB ~ -15 dB	±3 dB	±3 dB	-14 dB ~ -20 dB

Freq. / Speed	1kHz	10kHz	7kHz	100Hz	80Hz
1 7/8 ips (4.8 cm/s)	0 dB	0 dB ~ -15 dB	±3 dB	±3 dB	+2 dB ~ -4 dB

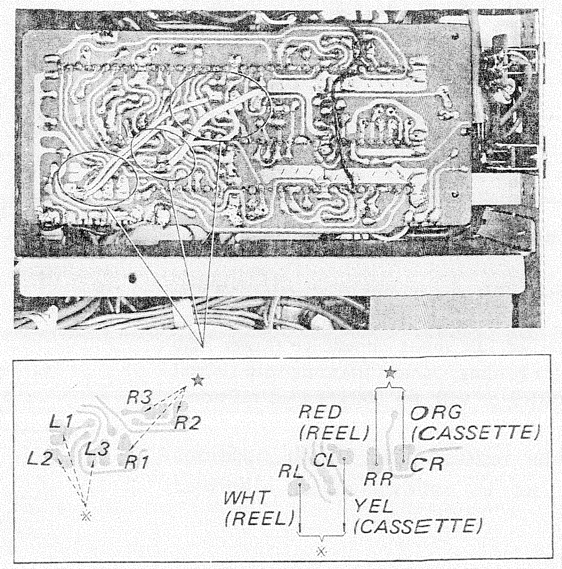

R3
R2
L1
L3
L2
R1
RED (REEL)
ORG (CASSETTE)
CL
CR
RL
RR
WHT (REEL)
YEL (CASSETTE)

Fig. 5-2-12 Adjusting parts location

REEL

1) Deliver a 1 kHz signal 0.775 mV (-60 dB) to the MIC jack.
2) Record 1 kHz, 18 kHz, 13 kHz, 10 kHz, 7 kHz, 5 kHz, 100 Hz and 30 Hz signals of $77 \mu V$ (-80 dB) on the blank tape in order.
3) Play back the tape. Make sure that the specified deviation of the output level at each frequency can be obtained.
4) Select the tap of the bias oscillator for the specified deviation, if necessary.

Note:
When the specified deviation cannot be obtained after performing step 4, check the Playback Frequency Response.

CASSETTE

Perform the same adjustment as in the procedure of the REEL.

10. Overall Signal-to-Noise Ratio Measurement

(See Fig. 5-2-11 on page 14.)

Specification

REEL

greater than 43 dB at $7^1/_2$ ips (19 cm/s)
greater than 40 dB at $3^3/_4$ ips (9.5 cm/s)
greater than 39 dB at $1^7/_8$ ips (4.8 cm/s)

CASSETTE

greater than 40 dB

REEL

1) Deliver a 1 kHz signal of 0.775 mV (-60 dB) to the MIC jack.
2) Record the signal on a blank tape. Cut off the input signal, and terminate the MIC jack with a 600Ω resistor. Continue the recording with no signal input.
3) Play back the tape. Make sure that the specified difference of the output level between the two parts of the tape can be obtained.

CASSETTE

Perform the same adjustment as in the procedure of the REEL.

11. Overall Distortion Measurement

(See Fig. 5-2-11 on page 14.)

Specification

REEL less than 3%
CASSETTE less than 4%

REEL

1) Deliver a 1 kHz signal of 0.775 mV (-60 dB) to the MIC jack.
2) Record the signal on a blank tape.
3) Play back the tape and measure the distortion.

CASSETTE

Perform the same adjustment as in the procedure of the REEL.

12. Power Amplifier Output Level Measurement

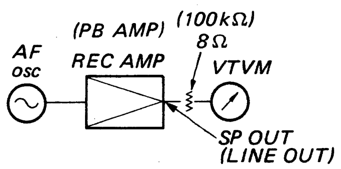


Fig. 5-2-13 Test setup for the Procedure 12, 14 & 21

Specification
in PB mode
+11.2 dB (2.8 V) ±1.5 dB
in REC MONITOR
Switch Position: "1"–17 dB (0.109 V) ±1.5 dB
"2"–1 dB (0.685 V) ±1.5 dB
OFF no output

REEL

1) Deliver a 1 kHz signal of 0.775 mV (-60 dB) to the MIC jack in the Playback mode.
2) Make sure that the specified speaker output level can be obtained.
3) Set the unit to the Record mode. Make sure that the specified speaker output level can be obtained at each monitor switch position, 2, 1 and OFF.

13. Overall Maximum Output Level Measurement

(See Fig. 5-2-11 on page 14.)

Specification greater than 6.1 V (18.4 dB) (5 W)

REEL

1) Deliver a 1 kHz signal of 0.775 mV (-60 dB) to the MIC jack.
2) Record the signal on a blank tape.
3) Play back the tape with the VOL and tone controls set to fully clockwise position. Check the speaker output level.

CASSETTE

Perform the same adjustment as in the procedure of the REEL.

14. Noise Suppressor Response Check

(See Fig. 5-2-13.)

Specification
between -4.5 dB and -8.5 dB from 1 kHz output level

REEL

1) Deliver a 1 kHz signal of 0.775 mV (-60 dB) to the MIC jack in the Playback mode.
2) Set the Noise Suppressor switch to ON, and check the speaker output level.
3) Change the signal frequency to 10 kHz. Check the output level.

15. Bass & Treble Response Check

(See Fig. 5-2-13 on page 15.)

Specification difference from 1 kHz output level

BASS	100 Hz	MAX	greater than +6 dB
		MIN	less than -6 dB
TREBLE	10 kHz	MAX	greater than +6 dB
		MIN	less than -6 dB

REEL

1) Deliver a 1 kHz signal of 0.775 mV (-60 dB) to the MIC jack.
2) Check the speaker output level.
3) Change the frequency to 100 Hz. Check the output levels with the BASS Control set to MAX and MIN.
4) Change the frequency to 10 kHz. Check the output levels with the TREBLE Control set to MAX and MIN.
5) Make sure that the specified differences can be obtained.

16. Dubbing Level Check

Specification

LINE OUT between 0.243 V (–10 dB) and 0.775 V (0 dB) (difference within 3 dB between channels)

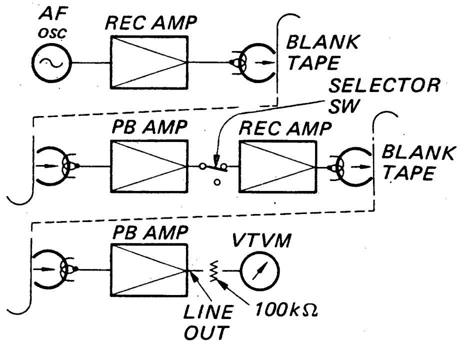


Fig. 5-2-14 Test setup for the Procedure 16 & 17

REEL to CASSETTE

1) Deliver a 1 kHz signal of 0.775 mV (-60 dB) to the MIC jack.
2) Record the signal on a blank tape.
3) Thread a blank tape cassette, play back the tape with the Source Selector set to REEL, and start dubbing.
4) Play back the tape cassette with the Source Selector set to CASSETTE. Check the line output level. Make sure the specified value can be obtained.

CASSETTE to REEL

Perform the adjustment in the same way as in the REEL to CASSETTE.

17. Dubbing Signal-to-Noise Ratio Measurement

(See Fig. 5-2-14.)

VALUE greater than 40 dB

REEL to CASSETTE

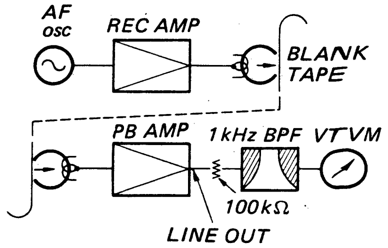
1) Deliver a 1 kHz signal of 0.775 mV (-60 dB) to the MIC jack.
2) Record the signal on a blank tape. Cut off the input signal, and terminate the MIC jack with a 600Ω resistor. Continue the recording with no signal input.
3) Thread a blank tape cassette, play back the tape with the Source Selector set to REEL, and start dubbing.
4) Play back the tape cassette with the Source Selector set to CASSETTE. Check the output levels at both parts of the tape.
Make sure that the signal-to-noise ratio is greater than 40 dB.

Note:
The recorded part without signal should be made perfect dubbing.

CASSETTE to REEL

Perform the measurement in the same way as in the REEL to CASSETTE.

18. Crosstalk Check between Tracks



VALUE
REEL
greater than
50 dB
CASSETTE
greater than
55 dB

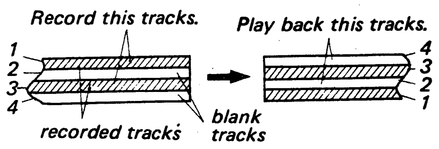
Fig. 5-2-15 Test setup for the Procedure 18, 19 & 20

REEL

1) Deliver 1 kHz signal of 2.45 mV (-50 dB) to the MIC jack, and record it on the blank tape.
2) Play back the tape. Check the LINE OUT level

through the 1 kHz bandpass filter.

3) Reverse the reels. Play back the unrecorded tracks. Check the line output level through the bandpass filter. Make sure that the correct difference can be obtained.

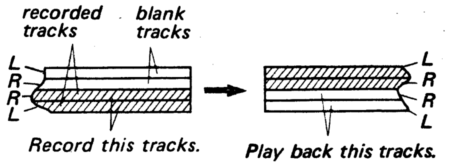

Record this tracks.
Play back this tracks.
1
2
3
4
4
3
2
1
recorded tracks
blank tracks

Notes:

1. The tape should be perfectly erased before making crosstalk check. A bulk eraser is recommendable.
2. The pointer of the Level Meter oscillates to the full when the input of 2.45 mV (-50 dB) is supplied.

CASSETTE

Perform the same measurement as in the procedure of the REEL.


recorded tracks
blank tracks
L
R
R
L
L
R
R
L
Record this tracks.
Play back this tracks.

Note:

Same as in the REEL.

19. Crosstalk Check between Channels

(See Fig. 5-2-15 on page 16.)

Specification

REEL

greater than 45 dB

CASSETTE

greater than 25 dB

REEL

1) Deliver a 1 kHz signal of 2.45 mV (-50 dB) to the MIC jack of Channel L, and terminate the jack of Channel R with a 600Ω resistor. Thread a blank tape, and set the both channels to the Record mode.
2) Play back the tape. Check the line output levels through the 1 kHz bandpass filter.
3) Make sure that the specified difference of the output level between the two channels can be obtained.
4) Perform the same measurement with the signal delivered to Channel R, and a resistor to Channel L.

Note:

See the Note in the Crosstalk Check between Tracks.

CASSETTE

Perform the same measurement as in the REEL.

20. Erase Ratio Measurement

(See Fig. 5-2-15 on page 16.)

Specification

REEL

greater than 60 dB

CASSETTE

greater than 60 dB

REEL

1) Deliver a 1 kHz signal of 2.45 mV (-50 dB) to the MIC jack, and record it onto a blank tape.
2) Rewind the tape by half. Cut off the input from the jack. Erase the tape by setting the unit to the Record mode without input signal.
3) Play back the tape. Make sure that the specified difference of the output level between the two parts of the tape through a 1 kHz bandpass filter.

CASSETTE

Perform the same measurement as in the REEL.

21. Minimum Input Level Measurement

(See Fig. 5-2-13 on page 15.)

Specification

MIC jack	less than 0.195 mV (-72 dB)
AUX jack	less than 61 mV (-22 dB)
PHONO jack	less than 1.09 mV (-57 dB)

1) Set the BASS and TREBLE Controls to the mechanical mid position, and the VOL Control to maximum.
2) Deliver a 1 kHz signal to the input jacks, MIC, AUX and PHONO. Check the input levels with the line output levels adjusted for 0.433 V (-5 dB).

22. End Lamp Check

(See Fig. 5-2-7 on page 13.)

CASSETTE

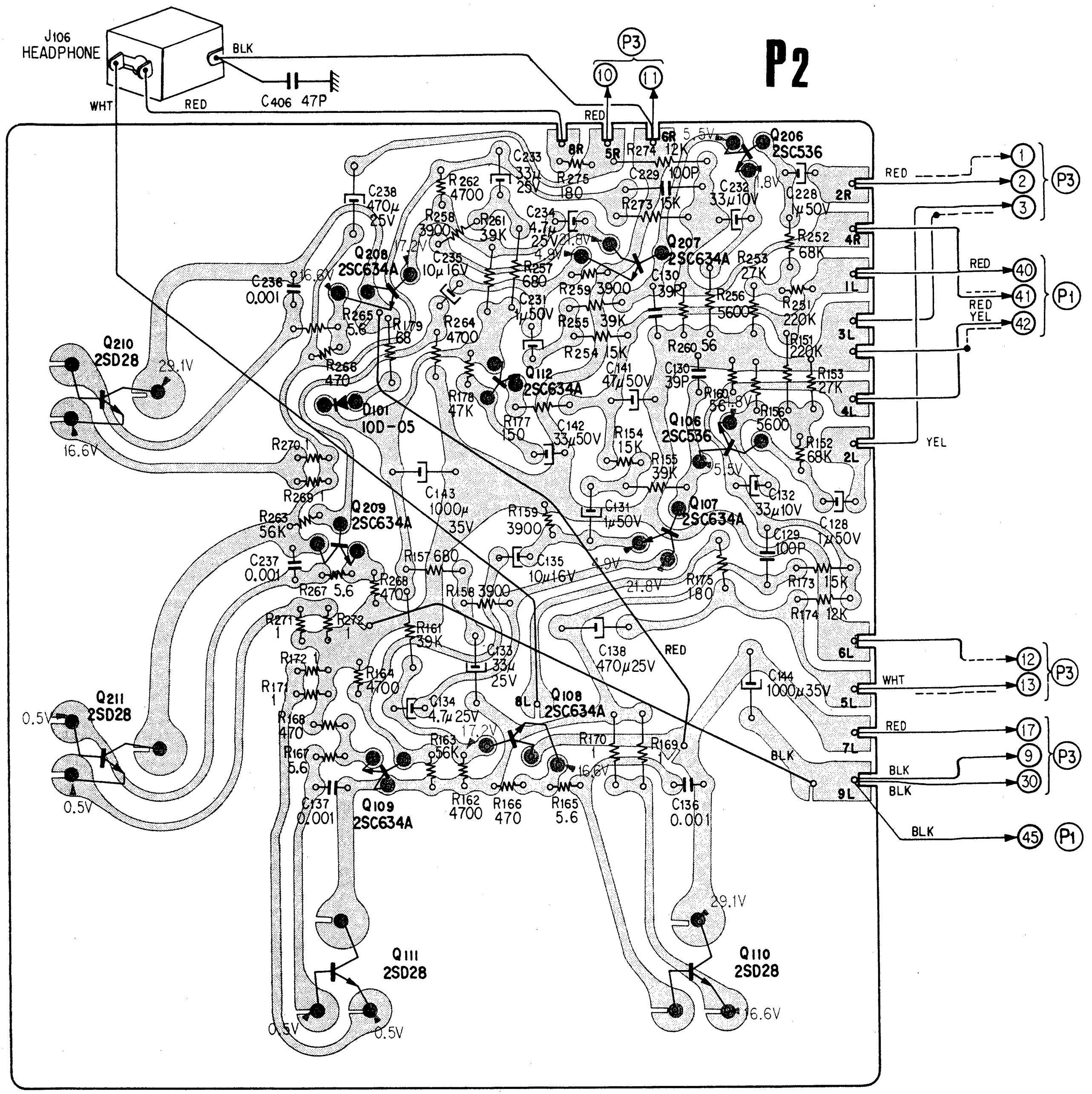
End Lamp Check

Make sure that the lamp lights at the end of the tape cassette in the Forward mode, when the tape cassette with sensing foil is used.

6. MOUNTING DIAGRAM

Power Amp. Circuit Board

– Conductor Side –


J106 HEADPHONE
WHT
RED
BLK
C406 47P
P2
(P3)
⑩
⑪
RED
8R
5R
6R
R274 12K
Q206 2SC536
R262 4700
R275 180
C229 100P
C233 33μ 25V
C238 470μ 25V
R273 15K
C232 33μ 10V
C228 1μ 50V
R258 3900
R261 39K
C234 4.7μ 25V
Q208 2SC634A
C235 10μ 16V
R257 680
Q207 2SC634A
R253 27K
R252 68K
C236 0.001
R259 3900
C230 39P
R256 5600
R251 220K
R265 5.6
R179 68
R264 4700
C231 1μ 50V
R255 39K
R254 15K
R260 56
R151 220K
Q210 2SD28
29.1V
R266 470
Q112 2SC634A
C141 47μ 50V
C130 39P
R153 27K
Q101 10D-05
R178 47K
R177 150
C142 33μ 50V
R154 15K
Q106 2SC536
R156 5600
R152 68K
16.6V
R270
R155 39K
R269
C143 1000μ 35V
R159 3900
C131 1μ 50V
C132 33μ 10V
R263 56K
Q209 2SC634A
Q107 2SC634A
C129 100P
C128 1μ 50V
C237 0.001
R157 680
C135 10μ 16V
R267 5.6
R268 4700
R158 3900
R175 180
R173 15K
R174 12K
R271
R272
R161 39K
C138 470μ 25V
RED
R172
C133 33μ 25V
C144 1000μ 35V
R171
R164 4700
Q211 2SD28
0.5V
C134 4.7μ 25V
Q108 2SC634A
R168 470
R163 56K
R170
R169
R167 5.6
C137 0.001
Q109 2SC634A
R162 4700
R166 470
R165 5.6
C136 0.001
0.5V
Q111 2SD28
Q110 2SD28
29.1V
16.6V
0.5V
0.5V
2R
4R
1L
3L
4L
2L
6L
5L
7L
9L
8L
RED
YEL
WHT
BLK
BLK
BLK
①
②
③
(P3)
RED
㊵
RED
㊶
YEL
㊷
(P1)
⑫
⑬
(P3)
RED
⑰
⑨
㉚
(P3)
BLK
㊺
(P1)

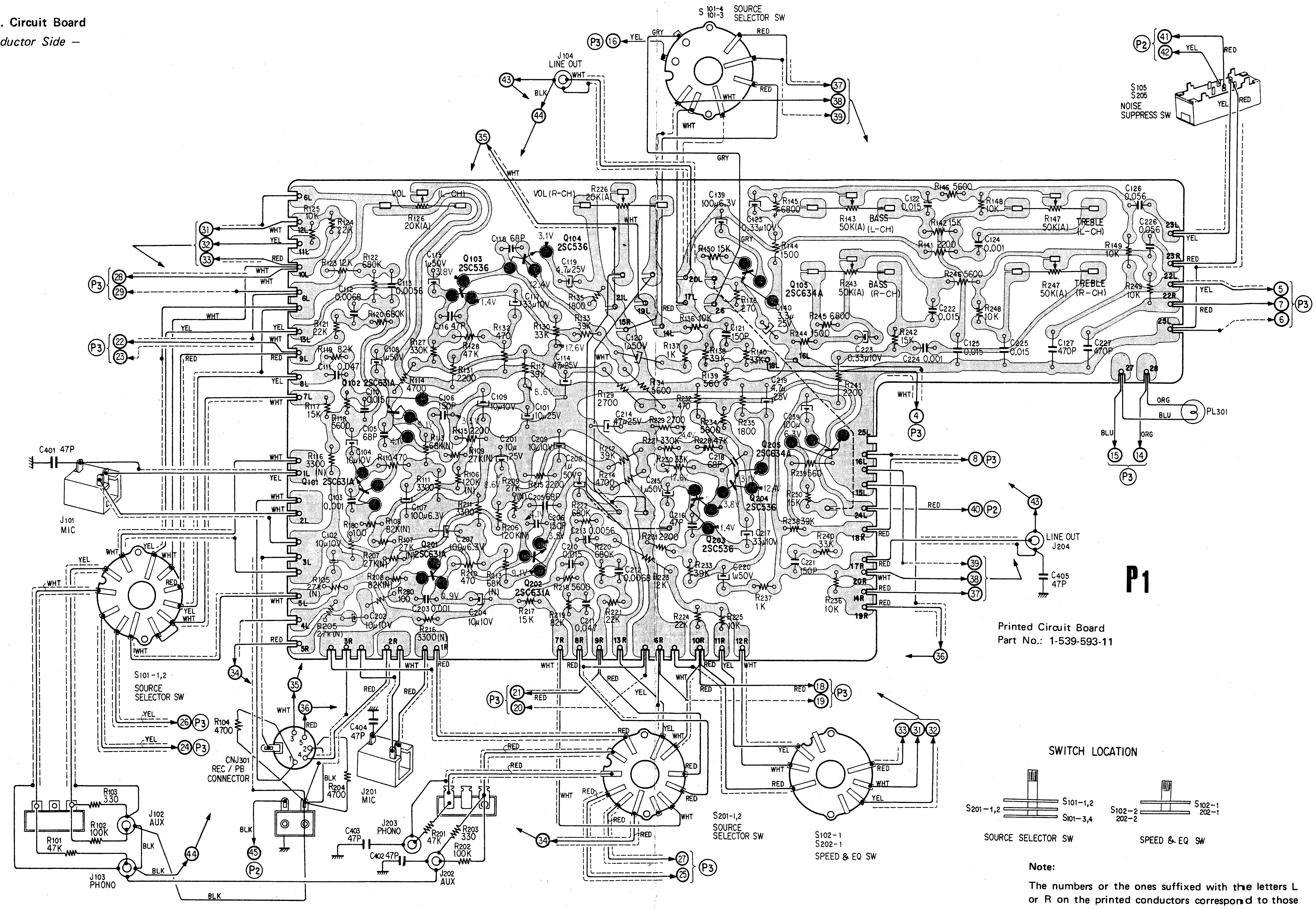
Printed Circuit Board
Part No.: 1-539-591-11

Note:

The numbers suffixed with the letters L or R on the printed conductors correspond to those which are indicated in the schematic diagram on pages 23 and 24.

Preamp. Circuit Board

– Conductor Side –


S 101-4 101-3 SOURCE SELECTOR SW
J104 LINE OUT
S105 S205 NOISE SUPPRESS SW
VOL (L-CH)
VOL (R-CH)
R226 20K(A)
R126 20K(A)
R143 BASS 50K(A) (L-CH)
R147 TREBLE 50K(A) (L-CH)
R243 BASS 50K(A) (R-CH)
R247 TREBLE 50K(A) (R-CH)
Q101 2SC631A
Q102 2SC631A
Q103 2SC536
Q104 2SC536
Q105 2SC634A
Q201 2SC631A
Q202 2SC631A
Q203 2SC536
Q204 2SC536
Q205 2SC634A
J101 MIC
C401 47P
S101-1,2 SOURCE SELECTOR SW
CNJ301 REC / PB CONNECTOR
R104 4700
C404 47P
J201 MIC
R204 4700
J102 AUX
J103 PHONO
R101 47K
R102 100K
R103 330
J203 PHONO
J202 AUX
C403 47P
C402 47P
R201 47K
R202 100K
R203 330
S201-1,2 SOURCE SELECTOR SW
S102-1 S202-1 SPEED & EQ SW
LINE OUT J204
C405 47P
PL301
WHT
BLK
RED
YEL
GRY
BLU
ORG
P1
P2
P3

P1

Printed Circuit Board
Part No.: 1-539-593-11

SWITCH LOCATION

S201-1,2
S101-1,2
S101-3,4
SOURCE SELECTOR SW
S102-2 202-2
S102-1 202-1
SPEED & EQ SW

Note:

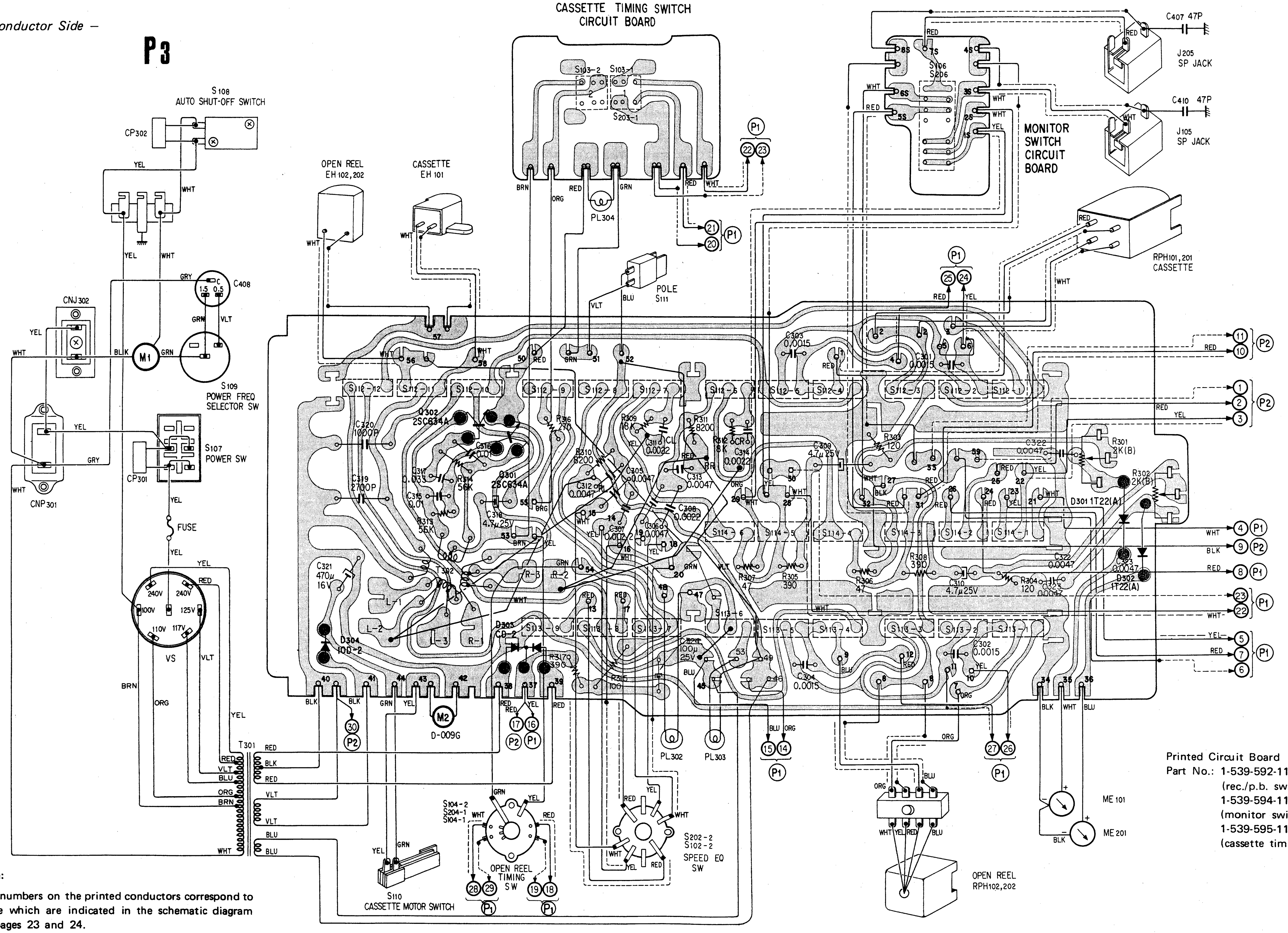
The numbers or the ones suffixed with the letters L or R on the printed conductors correspond to those which are indicated in the schematic diagram on pages 23 and 24.

Rec./PB Switch & Bias Osc. Circuit Board

Monitor Switch & Cassette Timing Switch Circuit Boards

– Conductor Side –

P3

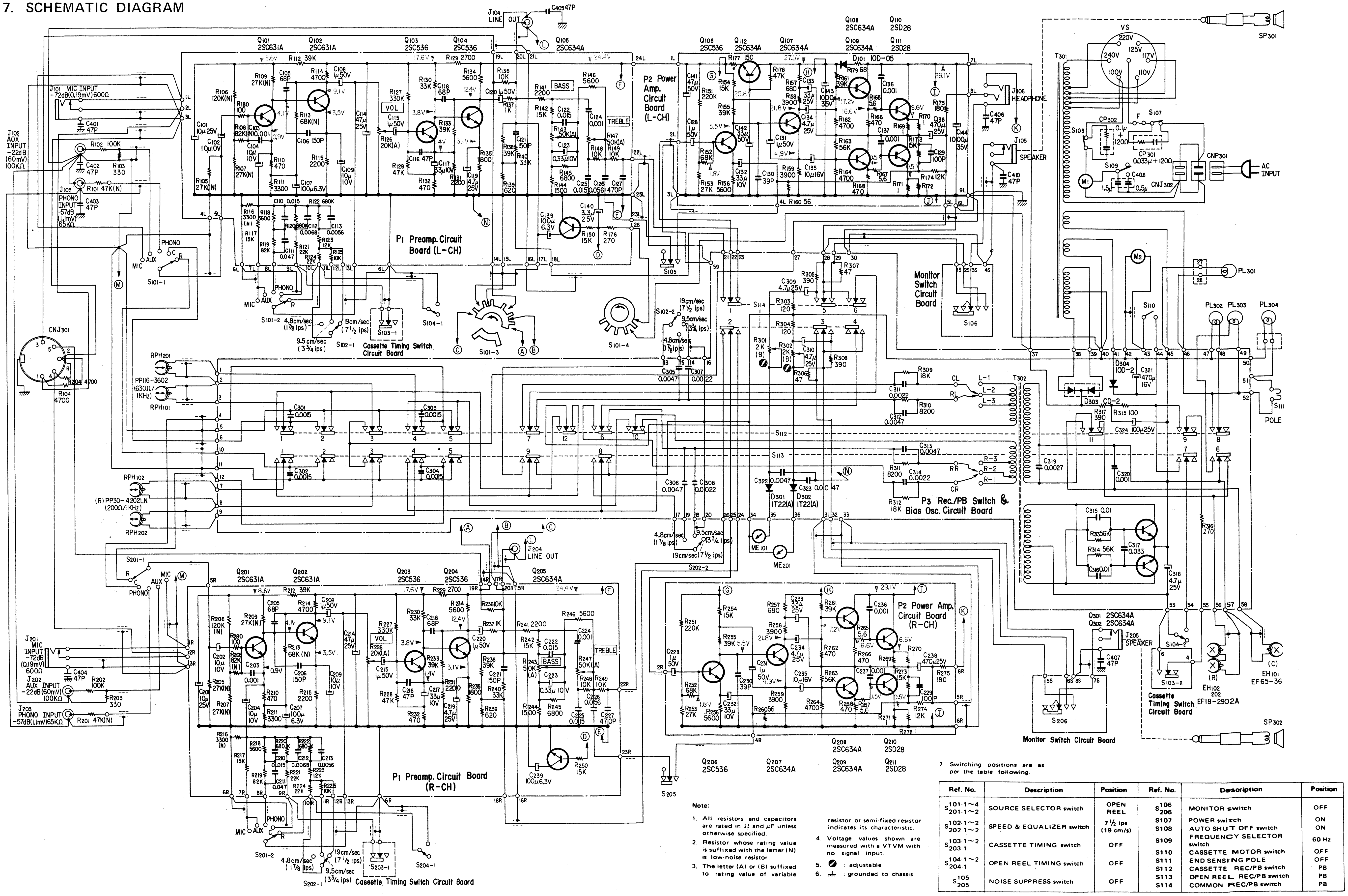

CASSETTE TIMING SWITCH CIRCUIT BOARD
S103-2
S103-1
S203-1
PL304
S108 AUTO SHUT-OFF SWITCH
CP302
OPEN REEL EH102,202
CASSETTE EH101
POLE S111
C408
CNJ302
M1
S109 POWER FREQ SELECTOR SW
S107 POWER SW
CP301
FUSE
CNP301
VS
T301
M2
D-009G
PL302
PL303
S104-2
S204-1
S104-1
OPEN REEL TIMING SW
S202-2
S102-2
SPEED EQ SW
S110
CASSETTE MOTOR SWITCH
S106
S206
MONITOR SWITCH CIRCUIT BOARD
C407 47P
J205 SP JACK
C410 47P
J105 SP JACK
RPH101,201 CASSETTE
Q302 2SC634A
Q301 2SC634A
D301 1T22(A)
D302 1T22(A)
D303 CD-2
D304 10D-2
ME101
ME201
OPEN REEL RPH102,202
P1
P2

Printed Circuit Board
Part No.: 1-539-592-11
(rec./p.b. switch & bias osc.)
1-539-594-11
(monitor switch)
1-539-595-11
(cassette timing switch)

Note:

The numbers on the printed conductors correspond to those which are indicated in the schematic diagram on pages 23 and 24.

7. SCHEMATIC DIAGRAM


J101 MIC INPUT -72dB(0.19mV)600Ω
J102 AUX INPUT -22dB (60mV) 100KΩ
J103 PHONO INPUT -57dB (1.1mV) 65KΩ
J104 LINE OUT
Q101 2SC631A
Q102 2SC631A
Q103 2SC536
Q104 2SC536
Q105 2SC634A
Q106 2SC536
Q107 2SC634A
Q108 2SC634A
Q109 2SC634A
Q110 2SD28
Q111 2SD28
Q112 2SC634A
VOL
BASS
TREBLE
P1 Preamp. Circuit Board (L-CH)
P2 Power Amp. Circuit Board (L-CH)
J106 HEADPHONE
J105 SPEAKER
SP301
VS
220V
240V
125V
117V
100V
110V
T301
S107
S108
S109
CP301
CP302
CNP301
CNJ302
AC INPUT
M1
M2
PL301
PL302
PL303
PL304
S110
S111 POLE
Monitor Switch Circuit Board
S106
S105
S101-1
S101-2
S101-3
S101-4
S102-1
S102-2
S103-1
S104-1
Cassette Timing Switch Circuit Board
19cm/sec (7½ ips)
9.5cm/sec (3¾ ips)
4.8cm/sec (1⅞ ips)
CNJ301
RPH201
PP116-3602 (630Ω/1KHz)
RPH101
RPH102
(R)PP30-4202LN (200Ω/1KHz)
RPH202
S112
S113
S114
T302
D301 1T22(A)
D302 1T22(A)
D303 CD-2
D304 10D-2
ME101
ME201
P3 Rec./PB Switch & Bias Osc. Circuit Board
S201-1
S201-2
S202-1
S202-2
S203-1
S204-1
S205
J201 MIC INPUT -72dB (0.19mV) 600Ω
J202 AUX INPUT -22dB(60mV) 100KΩ
J203 PHONO INPUT -57dB(1.1mV)65KΩ
J204 LINE OUT
Q201 2SC631A
Q202 2SC631A
Q203 2SC536
Q204 2SC536
Q205 2SC634A
P1 Preamp. Circuit Board (R-CH)
P2 Power Amp. Circuit Board (R-CH)
Q206 2SC536
Q207 2SC634A
Q208 2SC634A
Q209 2SC634A
Q210 2SD28
Q211 2SD28
Q301 2SC634A
Q302 2SC634A
J205 SPEAKER
S206
S104-2
S103-2
Cassette Timing Switch Circuit Board
EH101 EF65-36
EH102 EF18-2902A
SP302
PHONO
AUX
MIC

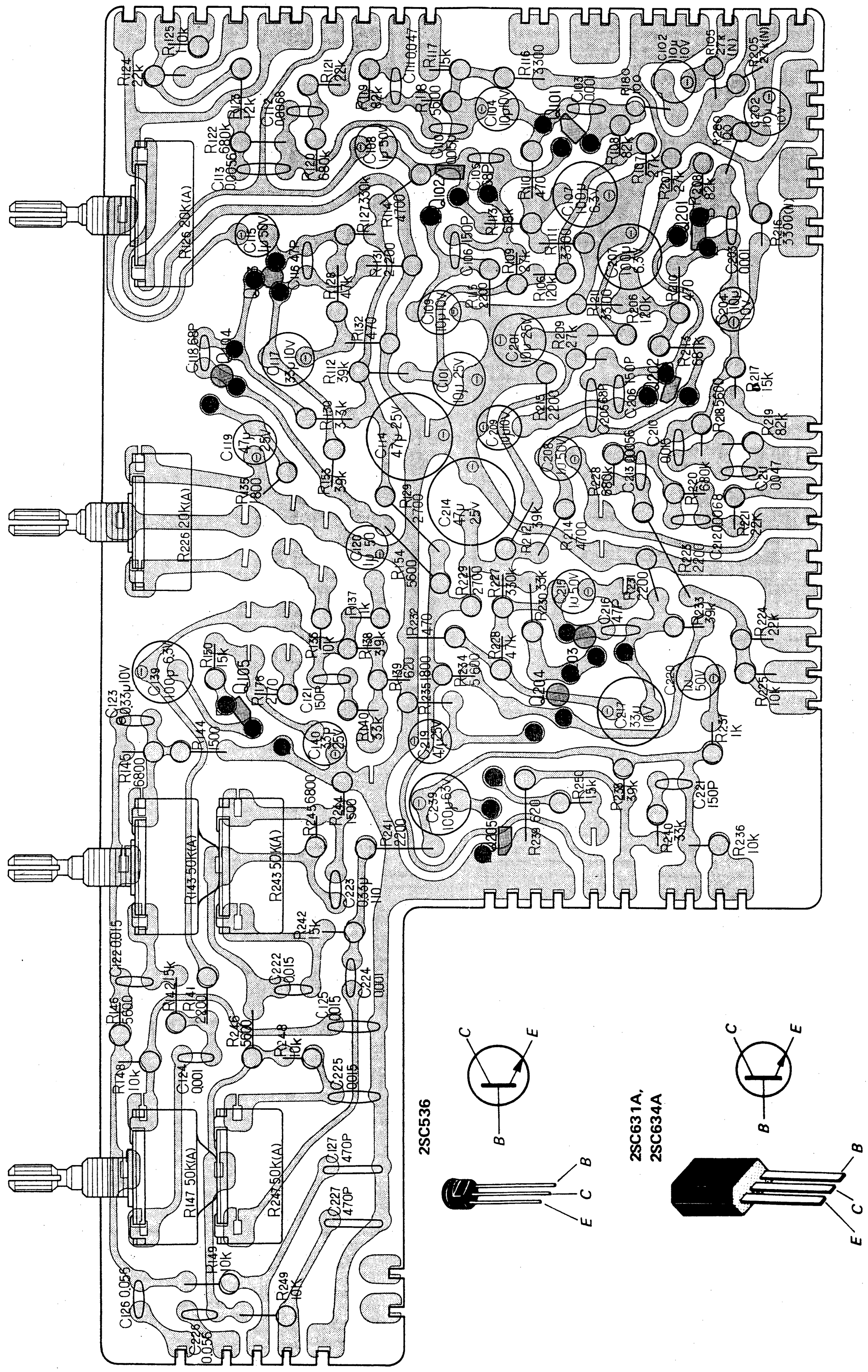
Note:

1. All resistors and capacitors are rated in Ω and μF unless otherwise specified.
2. Resistor whose rating value is suffixed with the letter (N) is low-noise resistor.
3. The letter (A) or (B) suffixed to rating value of variable resistor or semi-fixed resistor indicates its characteristic.
4. Voltage values shown are measured with a VTVM with no signal input.
5. ⊘ : adjustable
6. ⏚ : grounded to chassis
7. Switching positions are as per the table following.

Ref. No.	Description	Position	Ref. No.	Description	Position
$S^{101\text{-}1\sim 4}_{201\text{-}1\sim 2}$	SOURCE SELECTOR switch	OPEN REEL	S^{106}_{206}	MONITOR switch	OFF
$S^{102\text{-}1\sim 2}_{202\ 1\sim 2}$	SPEED & EQUALIZER switch	7½ ips (19 cm/s)	S107	POWER switch	ON
			S108	AUTO SHUT OFF switch	ON
$S^{103\text{-}1\sim 2}_{203\text{-}1}$	CASSETTE TIMING switch	OFF	S109	FREQUENCY SELECTOR switch	60 Hz
			S110	CASSETTE MOTOR switch	OFF
$S^{104\text{-}1\sim 2}_{204\text{-}1}$	OPEN REEL TIMING switch	OFF	S111	END SENSING POLE	OFF
			S112	CASSETTE REC/PB switch	PB
S^{105}_{205}	NOISE SUPPRESS switch	OFF	S113	OPEN REEL REC/PB switch	PB
			S114	COMMON REC/PB switch	PB

Preamp. Circuit Board

– Component Side –

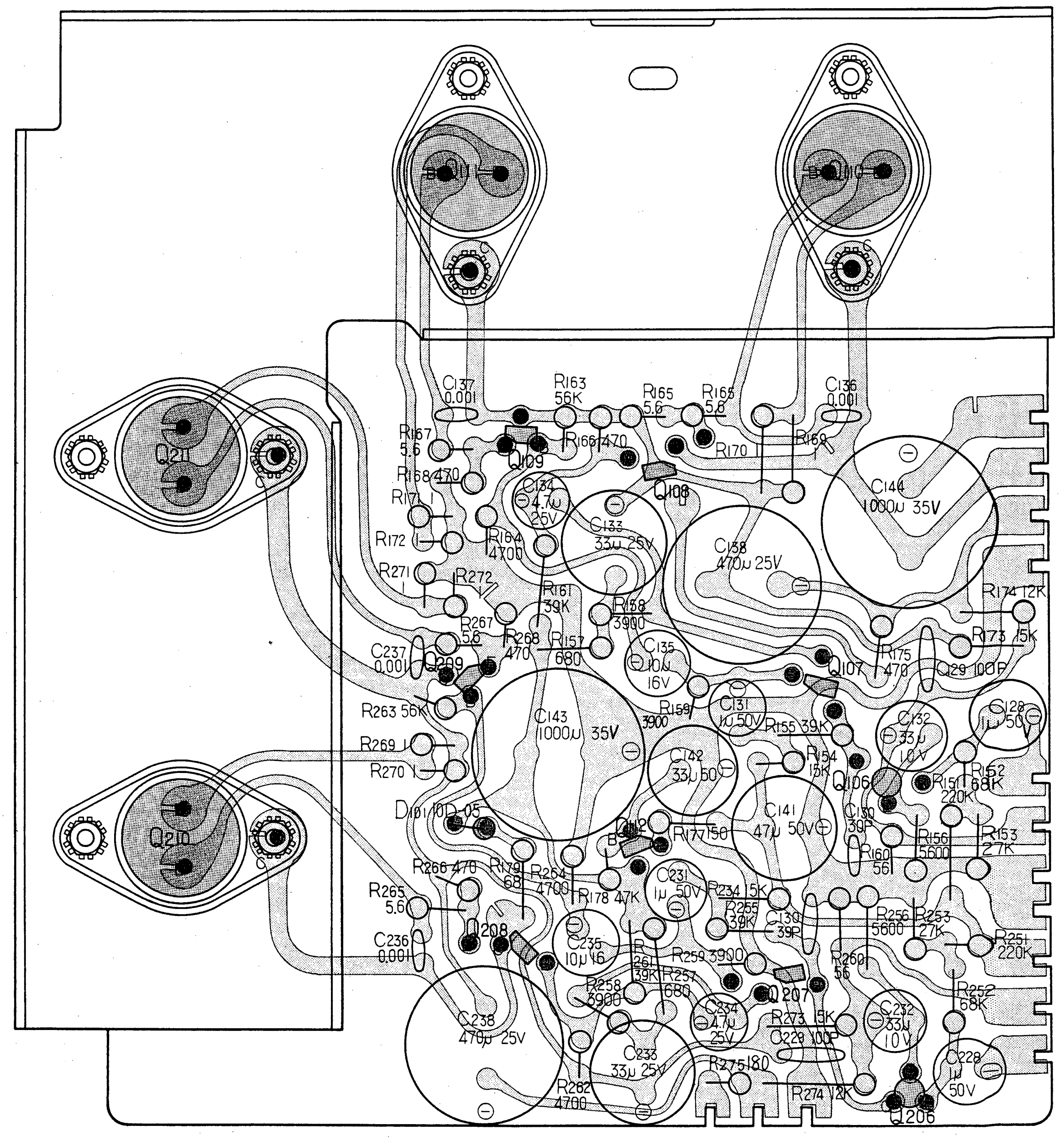

R226 20K(A)
R143 50K(A)
R243 50K(A)
R147 50K(A)
R247 50K(A)
R126 20K(A)

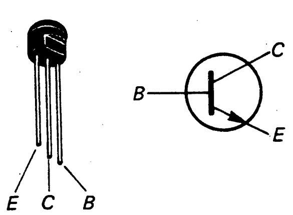
2SC536
C
E
B
B
C
E

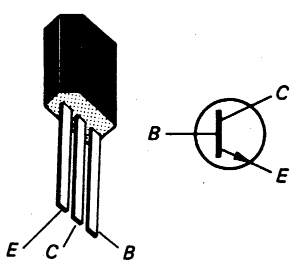
2SC631A,
2SC634A
C
E
B
B
C
E

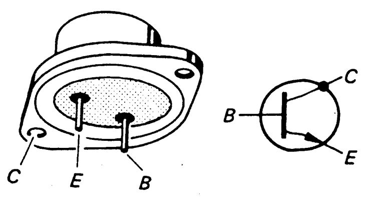
Power Amp. Circuit Board

– Component Side –


Q111
Q110
Q211
Q210
C144 1000µ 35V
C143 1000µ 35V
C138 470µ 25V
C238 470µ 25V


2SC536

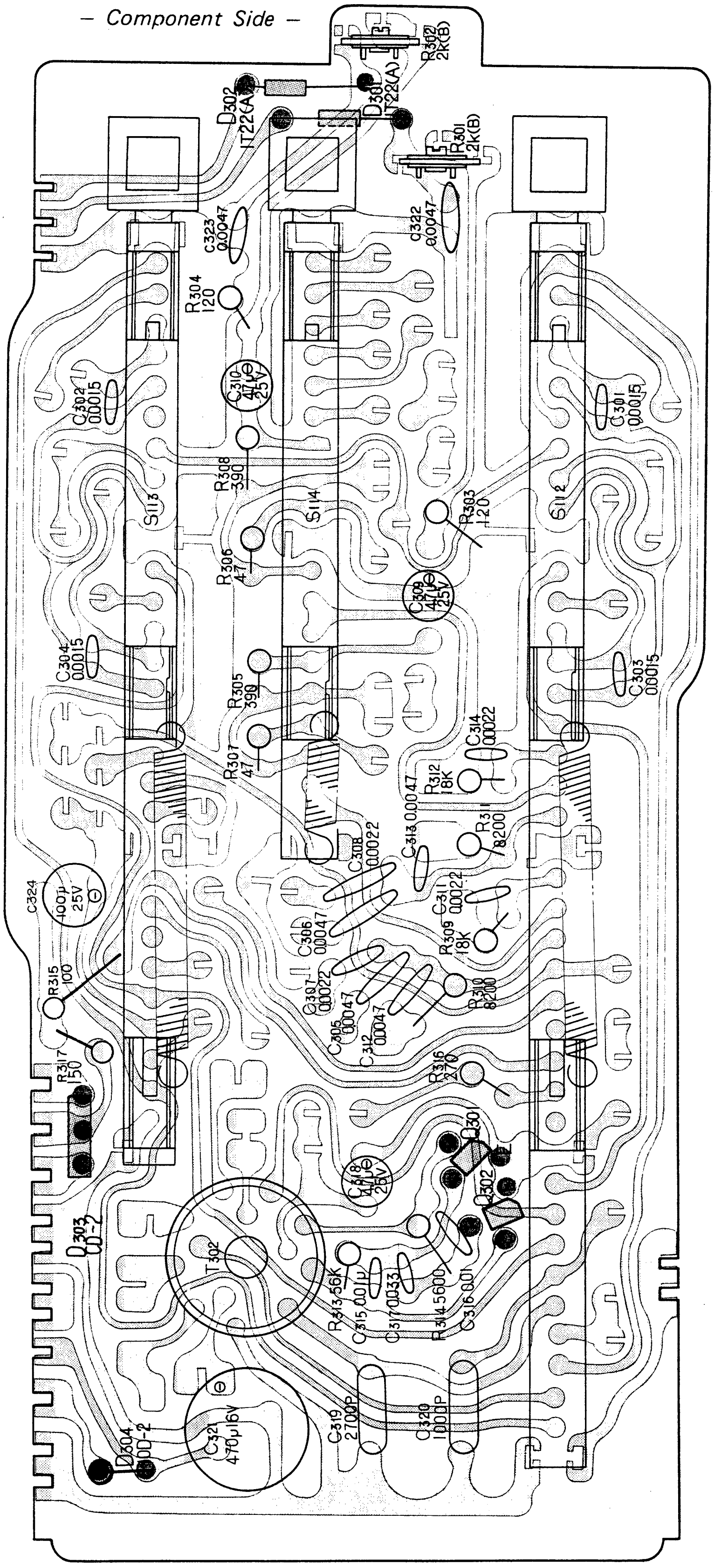

2SC634A

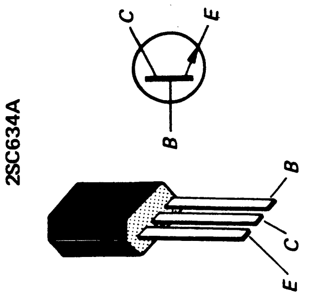

2SD28

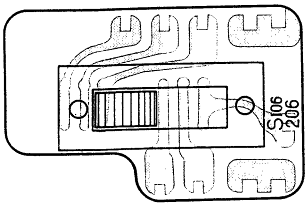
Rec./PB Switch & Bias Osc. Circuit Board

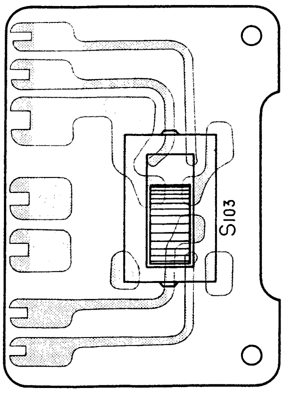
Monitor Switch & Cassette Timing Switch Circuit Boards

– Component Side –


R302 2k(B)
D302 IT22(A)
D301 IT22(A)
R301 2k(B)
C323 0.0047
C322 0.0047
R304 120
C310 47μ 25V
C302 0.0015
C301 0.0015
R308 390
S113
S114
S112
R303 120
R306 47
C309 47μ 25V
C304 0.0015
C303 0.0015
R305 390
C314 0.0022
R307 47
R312 18K
C313 0.0047
R311 8200
C308 0.0022
C311 0.0022
C324 400μ 25V
C306 0.0047
R309 18K
R315 100
C307 0.0022
R310 8200
C305 0.0047
C312 0.0047
R316 270
R317 150
Q301
Q302
C318 47μ 25V
D303 CD-2
T302
R313 5.6K
C315 0.01μ
C317 0.033
R314 5600
C316 0.01
C319 2700P
C320 1000P
D304 10D-2
C321 470μ 16V

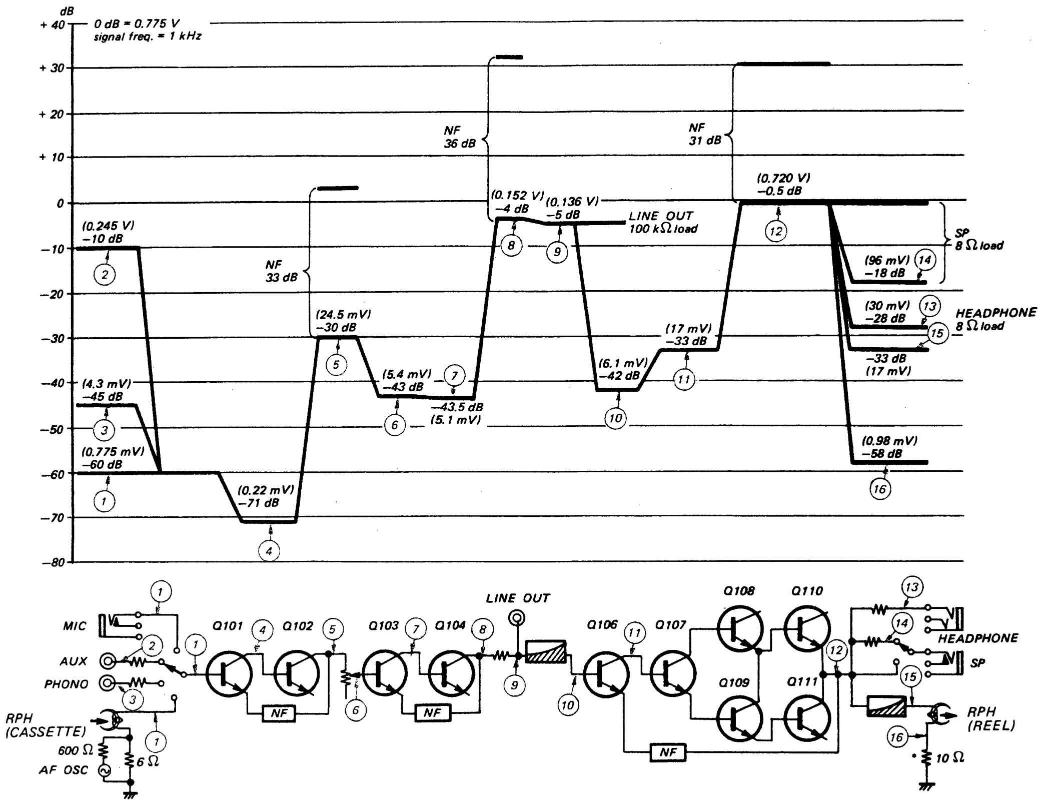

2SC634A
C
E
B
B
C
E





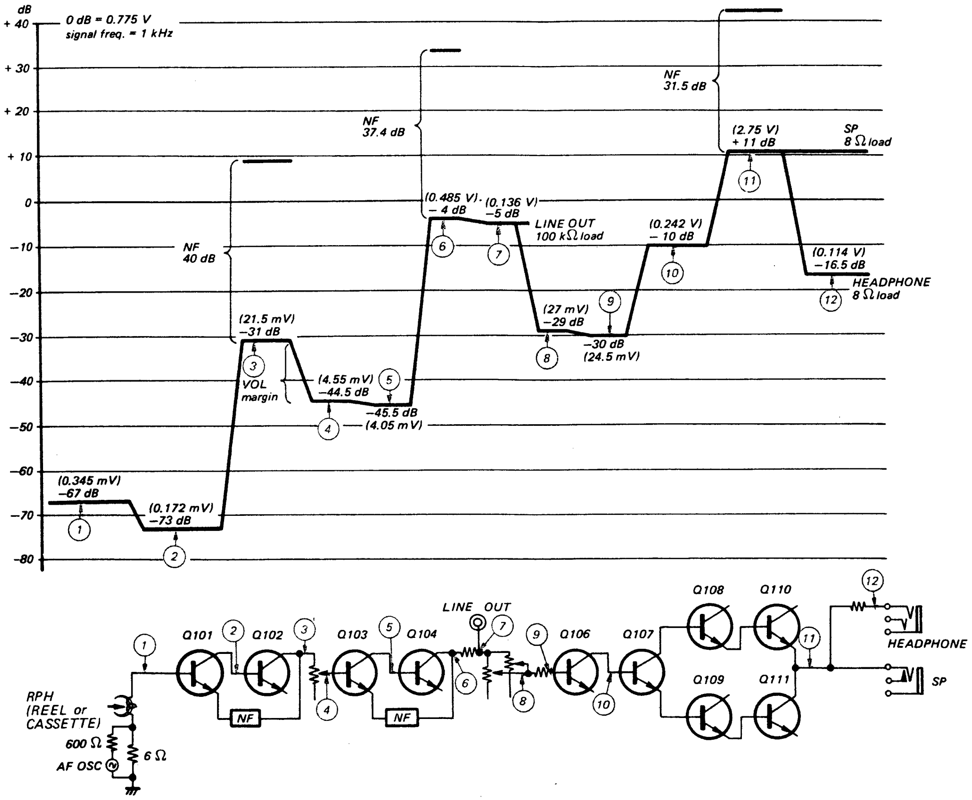
8. LEVEL DIAGRAM

Record


dB
+40
+30
+20
+10
0
-10
-20
-30
-40
-50
-60
-70
-80
0 dB = 0.775 V
signal freq. = 1 kHz
(0.245 V)
-10 dB
(4.3 mV)
-45 dB
(0.775 mV)
-60 dB
(0.22 mV)
-71 dB
NF
33 dB
(24.5 mV)
-30 dB
(5.4 mV)
-43 dB
-43.5 dB
(5.1 mV)
NF
36 dB
(0.152 V)
-4 dB
(0.136 V)
-5 dB
LINE OUT
100 kΩ load
(6.1 mV)
-42 dB
(17 mV)
-33 dB
NF
31 dB
(0.720 V)
-0.5 dB
SP
8 Ω load
(96 mV)
-18 dB
(30 mV)
-28 dB
HEADPHONE
8 Ω load
-33 dB
(17 mV)
(0.98 mV)
-58 dB
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
MIC
AUX
PHONO
RPH
(CASSETTE)
600 Ω
6 Ω
AF OSC
Q101
Q102
Q103
Q104
LINE OUT
Q106
Q107
Q108
Q110
Q109
Q111
NF
NF
NF
HEADPHONE
SP
RPH
(REEL)
10 Ω

* Connect only when measuring the level at 16.

Playback


dB
+40
+30
+20
+10
0
-10
-20
-30
-40
-50
-60
-70
-80
0 dB = 0.775 V
signal freq. = 1 kHz
(0.345 mV)
-67 dB
(0.172 mV)
-73 dB
NF
40 dB
(21.5 mV)
-31 dB
VOL
margin
(4.55 mV)
-44.5 dB
-45.5 dB
(4.05 mV)
NF
37.4 dB
(0.485 V)
-4 dB
(0.136 V)
-5 dB
LINE OUT
100 kΩ load
(27 mV)
-29 dB
-30 dB
(24.5 mV)
(0.242 V)
-10 dB
NF
31.5 dB
(2.75 V)
+11 dB
SP
8 Ω load
(0.114 V)
-16.5 dB
HEADPHONE
8 Ω load
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
RPH
(REEL or
CASSETTE)
600 Ω
6 Ω
AF OSC
Q101
Q102
Q103
Q104
LINE OUT
Q106
Q107
Q108
Q110
Q109
Q111
NF
NF
HEADPHONE
SP

9. MODIFICATION FOR DIFFERENT POWER LINE FREQUENCY

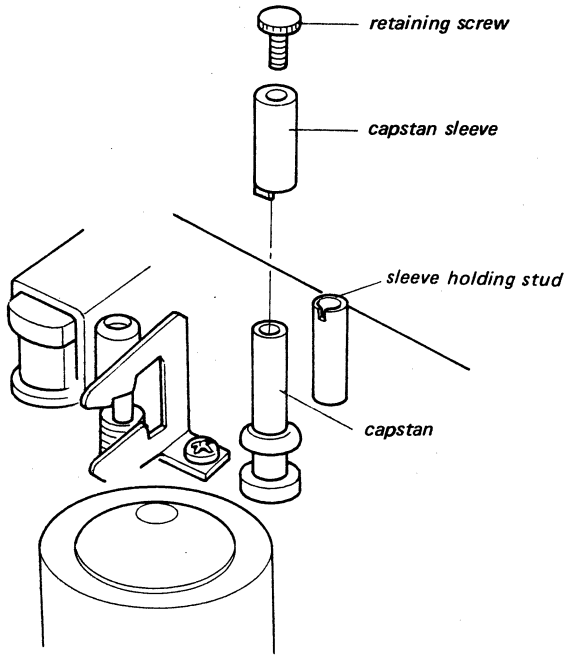
Note: This modification is for the REEL section only. No modification is needed for the CASSETTE section.

for 50 Hz

Set the frequency selector to "50" position. Remove the capstan sleeve from the sleeve holding stud, put the capstan sleeve on the capstan and secure it with the retaining screw.

for 60 Hz

Set the frequency selector to "60" position. Remove the capstan sleeve, put it on the sleeve holding stud and fix it with the retaining screw.



10. ELECTRICAL PARTS LIST

MOUNTED CIRCUIT BOARDS

Ref. No.	*Part No.*	*Description*
	X-34810-53-2	power amp.
	X-34810-52-3	rec./p.b. switch & bias osc.
	X-34810-51-3	preamp.
	X-34810-55-1	monitor switch
	X-34810-54-1	cassette timing switch

PRINTED CIRCUIT BOARDS

Ref. No.	*Part No.*	*Description*
	1-539-591-11	power amp.
	1-539-592-11	rec./p.b. switch & bias osc.
	1-539-593-11	preamp.
	1-539-594-11	monitor switch
	1-539-595-11	cassette timing switch

SEMICONDUCTORS

Ref. No.	*Part No.*	*Description*	
Q101, 201		transistor,	2SC631A
Q102, 202		transistor,	2SC631A
Q103, 203		transistor,	2SC536
Q104, 204		transistor,	2SC536
Q105, 205		transistor,	2SC634A
Q106, 206		transistor,	2SC536
Q107, 207		transistor,	2SC634A
Q108, 208		transistor,	2SC634A
Q109, 209		transistor,	2SC634A
Q110, 210		transistor,	2SD28
Q111, 211		transistor,	2SD28
Q112		transistor,	2SC634A
Q301		transistor,	2SC634
Q302		transistor,	2SC634
D101		diode,	10D-05
D301		diode,	1T-22 (A)
D302		diode,	1T-22 (A)
D303		diode,	CD-2
D304		diode,	10D-2

TRANSFORMERS

Ref. No.	*Part No.*	*Description*
T301	1-441-637	power
T302	1-433-147	bias osc.

CAPACITORS

Ref. No.	*Part No.*	*Description*		
C101, 201	1-121-398	10 μF	25V,	electrolytic
C102, 202	1-121-469	10 μF	10V,	electrolytic
C103, 203	1-105-661-12	0.001 μF	50V,	mylar
C104, 204	1-121-469	10 μF	10V,	electrolytic
C105, 205	1-107-127	68 pF	50V,	silvered mica
C106, 206	1-107-135	150 pF	50V,	silvered mica
C107, 207	1-121-413	100 μF	6.3V,	electrolytic
C108, 208	1-121-391	1 μF	50V,	electrolytic
C109, 209	1-121-469	10 μF	10V,	electrolytic
C110, 210	1-105-675-12	0.015 μF	50V,	mylar
C111, 211	1-105-681-12	0.047 μF	50V,	mylar
C112, 212	1-105-671-12	0.0068 μF	50V,	mylar
C113, 213	1-105-070-12	0.0056 μF	50V,	mylar
C114, 214	1-121-410	47 μF	25V,	electrolytic
C115, 215	1-121-391	1 μF	50V,	electrolytic
C116, 216	1-107-123	47 pF	50V,	silvered mica
C117, 217	1-121-402	33 μF	10V,	electrolytic
C118, 218	1-107-127	68 pF	50V,	silvered mica
C119, 219	1-121-395	47 μF	25V,	electrolytic
C120, 220	1-121-391	1 μF	50V,	electrolytic
C121, 221	1-107-135	150 pF	50V,	silvered mica
C122, 222	1-105-675-12	0.015 μF	50V,	mylar
C123, 223	1-127-021	0.33 μF	10V,	electrolytic
C124, 224	1-105-661-12	0.001 μF	50V,	mylar
C125, 225	1-105-675-12	0.015 μF	50V,	mylar
C126, 226	1-105-682-12	0.056 μF	50V,	mylar
C127, 227	1-107-244	470 pF	50V,	silvered mica
C128, 228	1-121-391	1 μF	50V,	electrolytic
C129, 229	1-107-131	100 pF	50V,	silvered mica
C130, 230	1-107-121	39 pF	50V,	silvered mica
C131, 231	1-121-391	1 μF	50V,	electrolytic
C132, 232	1-121-402	33 μF	10V,	electrolytic
C133, 233	1-121-404	33 μF	25V,	electrolytic
C134, 234	1-121-395	4.7 μF	25V,	electrolytic
C135, 235	1-121-469	10 μF	10V,	electrolytic
C136, 236	1-105-661-12	0.001 μF	50V,	mylar
C137, 237	1-105-661-12	0.001 μF	50V,	mylar
C138, 238	1-121-733	470 μF	25V,	electrolytic
C139, 239	1-121-413	100 μF	6.3V,	electrolytic
C140	1-121-392	3.3 μF	25V,	electrolytic
C141	1-121-411	47 μF	50V,	electrolytic
C142	1-121-405	33 μF	50V,	electrolytic
C143	1-121-388	1000 μF	35V,	electrolytic
C144	1-121-388	1000 μF	35V,	electrolytic
C301	1-105-663-12	0.0015 μF	50V,	mylar
C302	1-105-663-12	0.0015 μF	50V,	mylar
C303	1-105-663-12	0.0015 μF	50V,	mylar
C304	1-105-663-12	0.0015 μF	50V,	mylar
C305	1-105-669-12	0.0047 μF	50V,	mylar
C306	1-105-669-12	0.0047 μF	50V,	mylar
C307	1-105-665-12	0.0022 μF	50V,	mylar
C308	1-105-665-12	0.0022 μF	50V,	mylar
C309	1-121-395	4.7 μF	25V,	electrolytic
C310	1-121-395	4.7 μF	25V,	electrolytic
C311	1-105-665-12	0.0022 μF	50V,	mylar
C312	1-105-669-12	0.0047 μF	50V,	mylar
C313	1-105-669-12	0.0047 μF	50V,	mylar
C314	1-105-665-12	0.0022 μF	50V,	mylar
C315	1-105-673-12	0.01 μF	50V,	mylar
C316	1-105-673-12	0.01 μF	50V,	mylar
C317	1-105-679-12	0.033 μF	50V,	mylar
C318	1-121-398	10 μF	25V,	electrolytic

Ref. No.	Part No.	Description		
C319	1-129-707	2700 pF	630V,	polyethylene
C320	1-129-702	1000 pF	630V,	polyethylene
C321	1-121-426	470 µF	16V,	electrolytic
C322	1-106-074-12	0.0047 µF	50V,	mylar
C323	1-106-074-12	0.0047 µF	50V,	mylar
C324	1-121-416	100 µF	25V,	electrolytic
C401	1-107-123	47 pF	50V,	silvered mica
C402	1-107-123	47 pF	50V,	silvered mica
C403	1-107-123	47 pF	50V,	silvered mica
C404	1-107-123	47 pF	50V,	silvered mica
C405	1-107-123	47 pF	50V,	silvered mica
C406	1-107-123	47 pF	50V,	silvered mica
C407	1-107-123	47 pF	50V,	silvered mica
C408	1-117-036	(1.5+0.5)µF	250V,	MP
C409	1-105-681-12	0.047 µF	50V,	mylar
C410	1-107-123	47 pF	50V,	silvered mica

RESISTORS

Ref. No.	Part No.	Description		
R101, 201	1-242-713	47 kΩ	¼W,	carbon
R102, 202	1-242-721	100 kΩ	¼W,	carbon
R103, 203	1-242-661	330 Ω	¼W,	carbon
R104, 204	1-242-689	4700 Ω	¼W,	carbon
R105, 205	1-242-707	27 kΩ	¼W,	carbon
R106, 206	1-242-723	120 kΩ	¼W,	carbon
R107, 207	1-242-707	27 kΩ	¼W,	carbon
R108, 208	1-242-719	82 kΩ	¼W,	carbon
R109, 209	1-242-707	27 kΩ	¼W,	carbon
R110, 210	1-242-665	470 Ω	¼W,	carbon
R111, 211	1-242-685	3300 Ω	¼W,	carbon
R112, 212	1-242-711	39 kΩ	¼W,	carbon
R113, 213	1-242-717	68 kΩ	¼W,	carbon
R114, 214	1-242-689	4700 Ω	¼W,	carbon
R115, 215	1-242-681	2200 Ω	¼W,	carbon
R116, 216	1-242-685	3300 Ω	¼W,	carbon
R117, 217	1-242-701	15 kΩ	¼W,	carbon
R118, 218	1-242-691	5600 Ω	¼W,	carbon
R119, 219	1-242-719	82 kΩ	¼W,	carbon
R120, 220	1-242-741	680 kΩ	¼W,	carbon
R121, 221	1-242-705	22 kΩ	¼W,	carbon
R122, 222	1-242-741	680 kΩ	¼W,	carbon
R123, 223	1-242-699	12 kΩ	¼W,	carbon
R124, 224	1-242-705	22 kΩ	¼W,	carbon
R125, 225	1-242-697	10 kΩ	¼W,	carbon
R126, 226	1-221-593	20 kΩ (A)		variable
R127, 227	1-242-733	330 kΩ	¼W,	carbon
R128, 228	1-242-713	47 kΩ	¼W,	carbon
R129, 229	1-242-683	2700 Ω	¼W,	carbon
R130, 230	1-242-709	33 kΩ	¼W,	carbon
R131, 231	1-242-681	2200 Ω	¼W,	carbon
R132, 232	1-242-665	470 Ω	¼W,	carbon
R133, 233	1-242-711	39 kΩ	¼W,	carbon
R134, 234	1-242-691	5600 Ω	¼W,	carbon
R135, 235	1-242-679	1800 Ω	¼W,	carbon
R136, 236	1-242-697	10 kΩ	¼W,	carbon
R137, 237	1-242-673	1 kΩ	¼W,	carbon
R138, 238	1-242-711	39 kΩ	¼W,	carbon
R139, 239	1-242-668	620 Ω	¼W,	carbon
R140, 240	1-242-709	33 kΩ	¼W,	carbon
R141, 241	1-242-681	2200 Ω	¼W,	carbon
R142, 242	1-242-701	15 kΩ	¼W,	carbon
R143, 243	1-222-203	50 kΩ (A)		variable
R144, 244	1-242-677	1500 Ω	¼W,	carbon
R145, 245	1-242-693	6800 Ω	¼W,	carbon
R146, 246	1-242-691	5600 Ω	¼W,	carbon
R147, 247	1-222-203	50 kΩ (A)		variable
R148, 248	1-242-697	10 kΩ	¼W,	carbon
R149, 249	1-242-697	10 kΩ	¼W,	carbon
R150, 250	1-242-701	15 kΩ	¼W,	carbon
R151, 251	1-242-729	220 kΩ	¼W,	carbon
R152, 252	1-242-717	68 kΩ	¼W,	carbon
R153, 253	1-242-707	27 kΩ	¼W,	carbon
R154, 254	1-242-701	15 kΩ	¼W,	carbon
R155, 255	1-242-711	39 kΩ	¼W,	carbon
R156, 256	1-242-691	5600 Ω	¼W,	carbon
R157, 257	1-242-669	680 Ω	¼W,	carbon
R158, 258	1-242-687	3900 Ω	¼W,	carbon
R159, 259	1-242-687	3900 Ω	¼W,	carbon
R160, 260	1-242-643	56 Ω	¼W,	carbon
R161, 261	1-242-711	39 kΩ	¼W,	carbon
R162, 262	1-242-689	4700 Ω	¼W,	carbon
R163, 263	1-242-715	56 kΩ	¼W,	carbon
R164, 264	1-242-689	4700 Ω	¼W,	carbon
R165, 265	1-242-619	5.6 Ω	¼W,	carbon
R166, 266	1-242-665	470 Ω	¼W,	carbon
R167, 267	1-242-619	5.6 Ω	¼W,	carbon
R168, 268	1-242-665	470 Ω	¼W,	carbon
R169, 269	1-242-601	1 Ω	¼W,	carbon
R170, 270	1-242-601	1 Ω	¼W,	carbon
R171, 271	1-242-601	1 Ω	¼W,	carbon
R172, 272	1-242-601	1 Ω	¼W,	carbon
R173, 273	1-242-701	15 kΩ	¼W,	carbon
R174, 274	1-242-699	12 kΩ	¼W,	carbon
R175, 275	1-242-655	180 kΩ	¼W,	carbon
R176	1-242-659	270 Ω	¼W,	carbon
R177	1-242-653	150 Ω	¼W,	carbon
R178	1-242-713	47 kΩ	¼W,	carbon
R179	1-242-645	68 Ω	¼W,	carbon
R180, 280	1-242-649	100 Ω	¼W,	carbon
R301	1-221-663	2 kΩ (B)		semi-fixed
R302	1-221-663	2 kΩ (B)		semi-fixed
R303	1-242-651	120 Ω	¼W,	carbon
R304	1-242-651	120 Ω	¼W,	carbon
R305	1-242-663	390 Ω	¼W,	carbon
R306	1-244-841	47 Ω	½W,	carbon
R307	1-244-841	47 Ω	½W,	carbon
R308	1-242-663	390 Ω	¼W,	carbon
R309	1-242-703	18 kΩ	¼W,	carbon
R310	1-242-695	8200 Ω	¼W,	carbon
R311	1-242-695	8200 Ω	¼W,	carbon
R312	1-242-703	18 kΩ	¼W,	carbon
R313	1-242-715	56 kΩ	¼W,	carbon
R314	1-242-715	56 kΩ	¼W,	carbon
R315	1-244-849	100 Ω	½W,	carbon
R316	1-242-647	270 Ω	¼W,	carbon
R317	1-244-863	390 Ω	½W,	carbon

SWITCHES

Ref. No.	Part No.	Description
S101-1~4 S201-1~2	1-514-747	rotary, source selector
S102-1~2 S202-1~2	1-514-739	rotary, speed & equalizer
S103-1~2 S203	1-513-273	slide, cassette timing
S104-1~2 S204-1	1-514-548	rotary, reel timing
S105, 205	1-514-524	slide, noise suppress
S106, 206	1-513-254	slide, monitor
S107	1-514-655-31	seesaw, power
S108	1-514-039	micro, auto-shut-off
S109	1-514-512	selector, frequency
S110	1-514-584	leaf, cassette motor
S111	1-514-740	pole, end sensing
S112	1-514-738	slide, rec./p.b.; CASSETTE
S113	1-514-737	slide, rec./p.b.; REEL
S114	1-513-231-17	slide, common rec./p.b.

JACKS

Ref. No.	Part No.	Description
J101, 201	1-507-251	MIC
J102, 202	1-507-142	AUX
J103, 203	1-507-142	PHONO
J104, 204	1-507-142	LINE OUTput
J105, 205	1-507-251	LID SP
J106	1-507-282	HEADPHONE

HEADS

Ref. No.	Part No.	Description
RPH101, 201	8-822-836-20	rec./p.b.; CASSETTE (PP116-3602)
RPH102, 202	8-821-242-22	rec./p.b.; REEL (PP30-4202LN)
EH101, 201	8-828-136-00	erase; CASSETTE (EF65-36)
EH102, 202	8-826-629-24	erase; REEL (EF18-2902A)

LAMPS

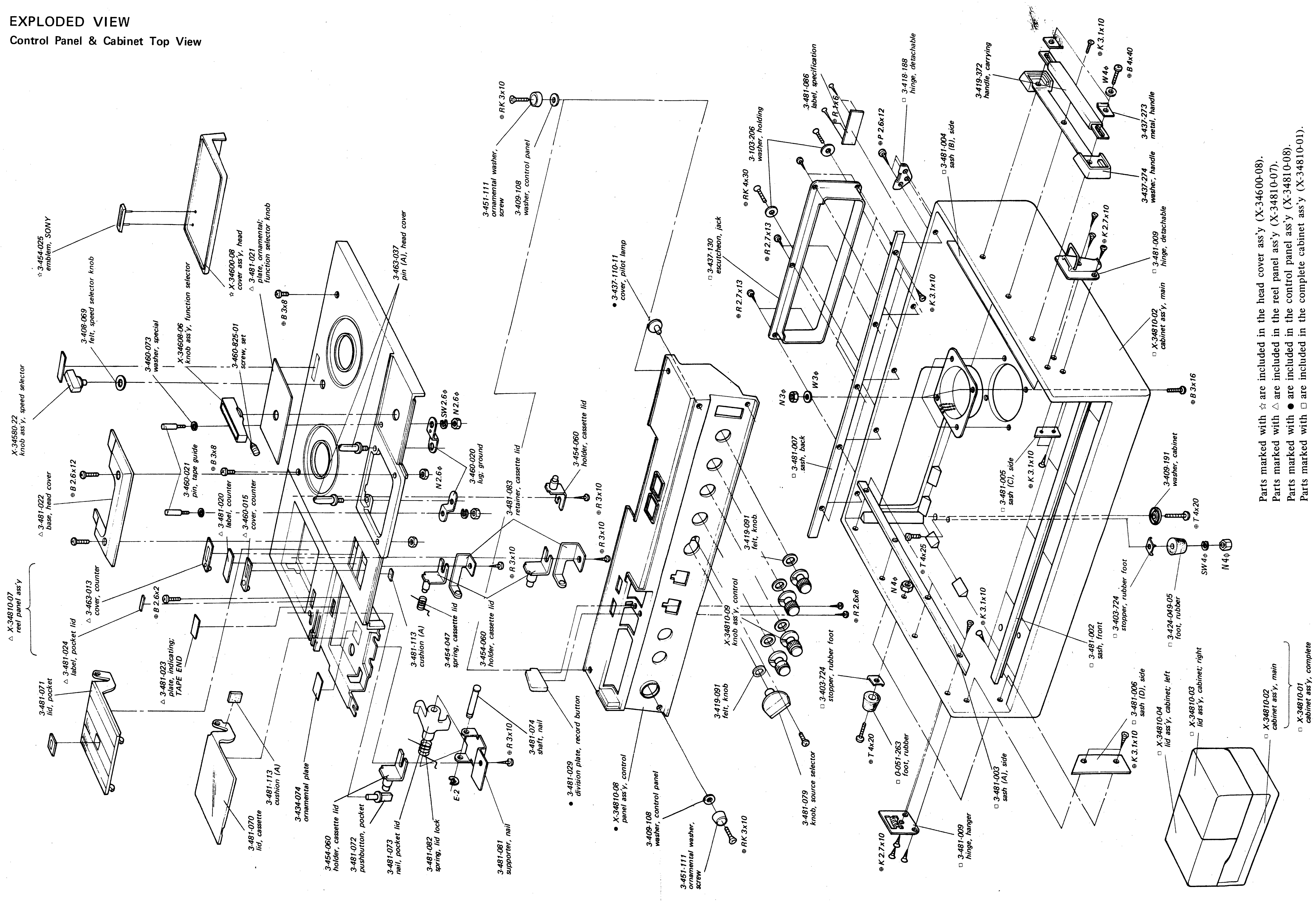
Ref. No.	Part No.	Description
PL301	1-518-093-11	pilot, power
PL302	1-518-093-21	pilot, record; CASSETTE
PL303	1-518-093-21	pilot, record; REEL
PL304	1-518-093-11	pilot, tape end

MISCELLANEOUS

Ref. No.	Part No.	Description
CNJ301	1-509-359	connector, rec./p.b.
CNJ302	1-509-015	connector, power supply, UNSWITCHED
CNP301	1-509-062	connector, power supply
VS	1-509-064-13S	socket, power voltage selector
F	1-532-096	fuse, 0.8 A
ME101, 201	1-524-070-11	meter, level
M1	8-832-624-09	motor, ac; OPEN REEL (IC-624H1)
M2	8-834-009-01	motor, dc; CASSETTE (D-009G)
SP301	1-502-175	speaker
SP302	1-502-175	speaker
CP301	1-231-057-12	encapsulated component, (0.033µF + 120Ω) 400V
CP302	1-101-534-12	encapsulated component, (0.1µF + 120Ω) 400V
	1-536-146	terminal strip, 1-L-1; A type
	1-536-178	terminal strip, 1-L; C type
	1-536-179	terminal strip, 1-L-1; C type
	1-533-006	holder, fuse w/cover
	1-534-413	cord, speaker

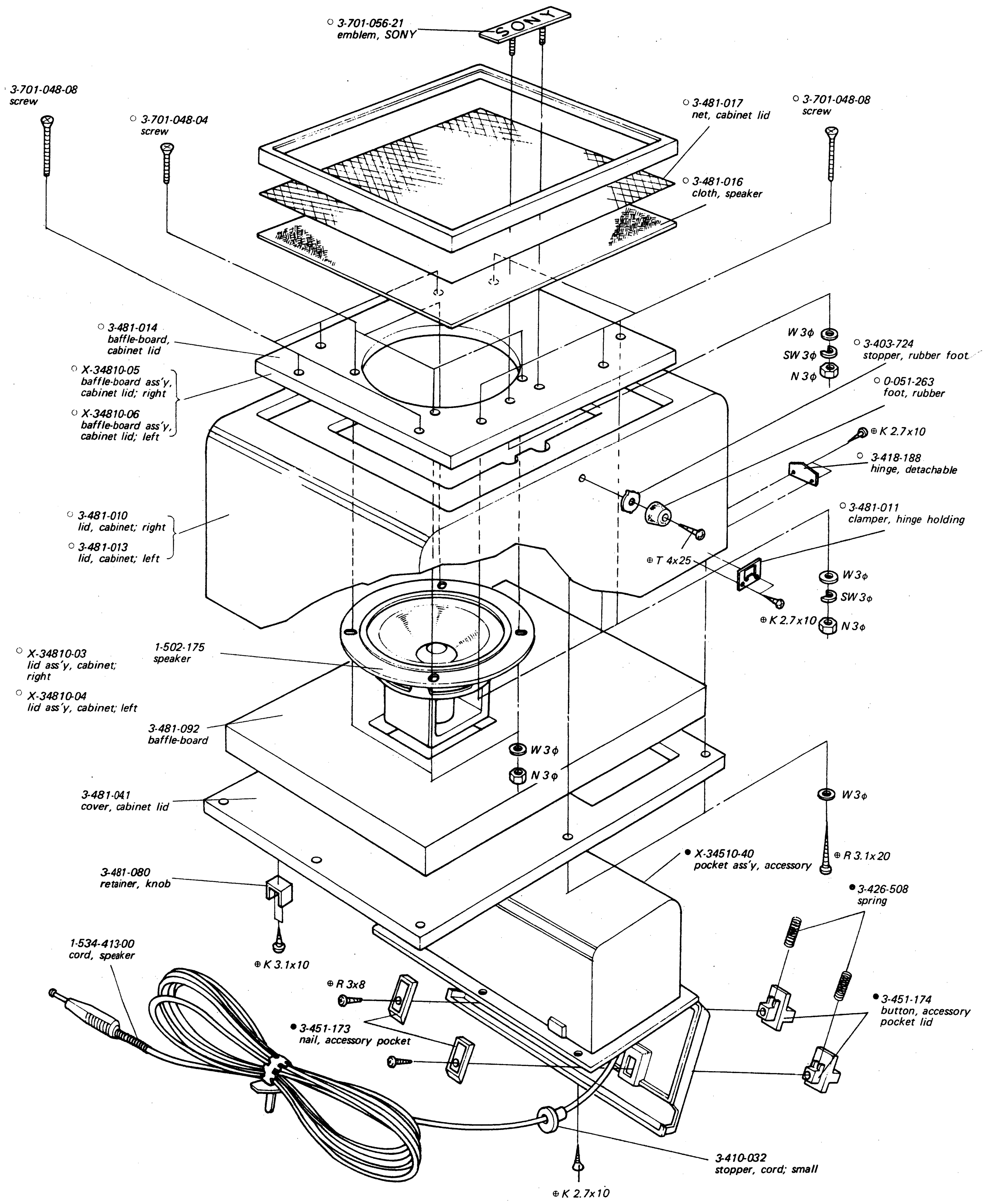
11. EXPLODED VIEW

Control Panel & Cabinet Top View


X-34580-22 knob ass'y, speed selector
☆ 3-454-025 emblem, SONY
3-408-069 felt, speed selector knob
3-460-073 washer, special
X-34608-06 knob ass'y, function selector
☆ X-34600-08 cover ass'y, head
△ 3-481-021 plate, ornamental; function selector knob
⊕ B 3x8
3-460-825-01 screw, set
3-463-037 pin (A), head cover
△ 3-481-022 base, head cover
⊕ B 2.6x12
3-460-021 pin, tape guide
⊕ B 3x8
△ 3-481-020 label, counter
△ 3-460-015 cover, counter
△ X-34810-07 reel panel ass'y
△ 3-463-013 cover, counter
⊕ B 2.6x2
△ 3-481-024 label, pocket lid
3-481-071 lid, pocket
△ 3-481-023 plate, indicating; TAPE END
3-481-113 cushion (A)
3-434-074 ornamental plate
3-481-070 lid, cassette
3-454-060 holder, cassette lid
3-481-072 pushbutton, pocket
3-481-073 nail, pocket lid
3-481-082 spring, lid lock
E-2
3-481-081 supporter, nail
⊕ R 3x10
3-481-074 shaft, nail
3-481-113 cushion (A)
3-454-047 spring, cassette lid
3-454-060 holder, cassette lid
⊕ R 3x10
3-481-083 retainer, cassette lid
⊕ R 3x10
⊕ R 3x10
3-454-060 holder, cassette lid
SW 2.6φ
N 2.6φ
N 2.6φ
3-460-020 lug, ground
3-451-111 ornamental washer, screw
3-409-108 washer, control panel
⊕ RK 3x10
● 3-437-110-11 cover, pilot lamp
● 3-481-029 division plate, record button
● X-34810-08 panel ass'y, control
3-409-108 washer, control panel
3-451-111 ornamental washer, screw
⊕ RK 3x10
3-419-091 felt, knob
3-419-091 felt, knob
X-34810-09 knob ass'y, control
⊕ R 2.6x8
3-481-079 knob, source selector
□ 3-403-724 stopper, rubber foot
⊕ T 4x20
□ 0-051-263 foot, rubber
⊕ K 2.7x10
□ 3-481-009 hinge, hanger
□ 3-481-003 sash (A), side
⊕ K 3.1x10
□ 3-481-006 sash (D), side
□ X-34810-04 lid ass'y, cabinet; left
□ X-34810-03 lid ass'y, cabinet; right
□ X-34810-02 cabinet ass'y, main
□ X-34810-01 cabinet ass'y, complete
□ 3-481-002 sash, front
□ 3-403-724 stopper, rubber foot
□ 3-424-049-05 foot, rubber
SW 4φ
N 4φ
⊕ T 4x20
3-409-191 washer, cabinet
⊕ K 3.1x10
□ 3-481-005 sash (C), side
⊕ T 4x25
N 4φ
⊕ K 3.1x10
□ 3-481-007 sash, back
N 3φ
W 3φ
⊕ B 3x16
□ X-34810-02 cabinet ass'y, main
□ 3-481-009 hinge, detachable
⊕ K 2.7x10
□ 3-437-130 escutcheon, jack
⊕ R 2.7x13
⊕ R 2.7x13
⊕ RK 4x30
3-103-206 washer, holding
⊕ K 3.1x10
3-481-086 label, specification
⊕ R 1x6
⊕ P 2.6x12
□ 3-418-188 hinge, detachable
□ 3-481-004 sash (B), side
3-419-372 handle, carrying
⊕ K 3.1x10
W 4φ
⊕ B 4x40
3-437-273 metal, handle
3-437-274 washer, handle

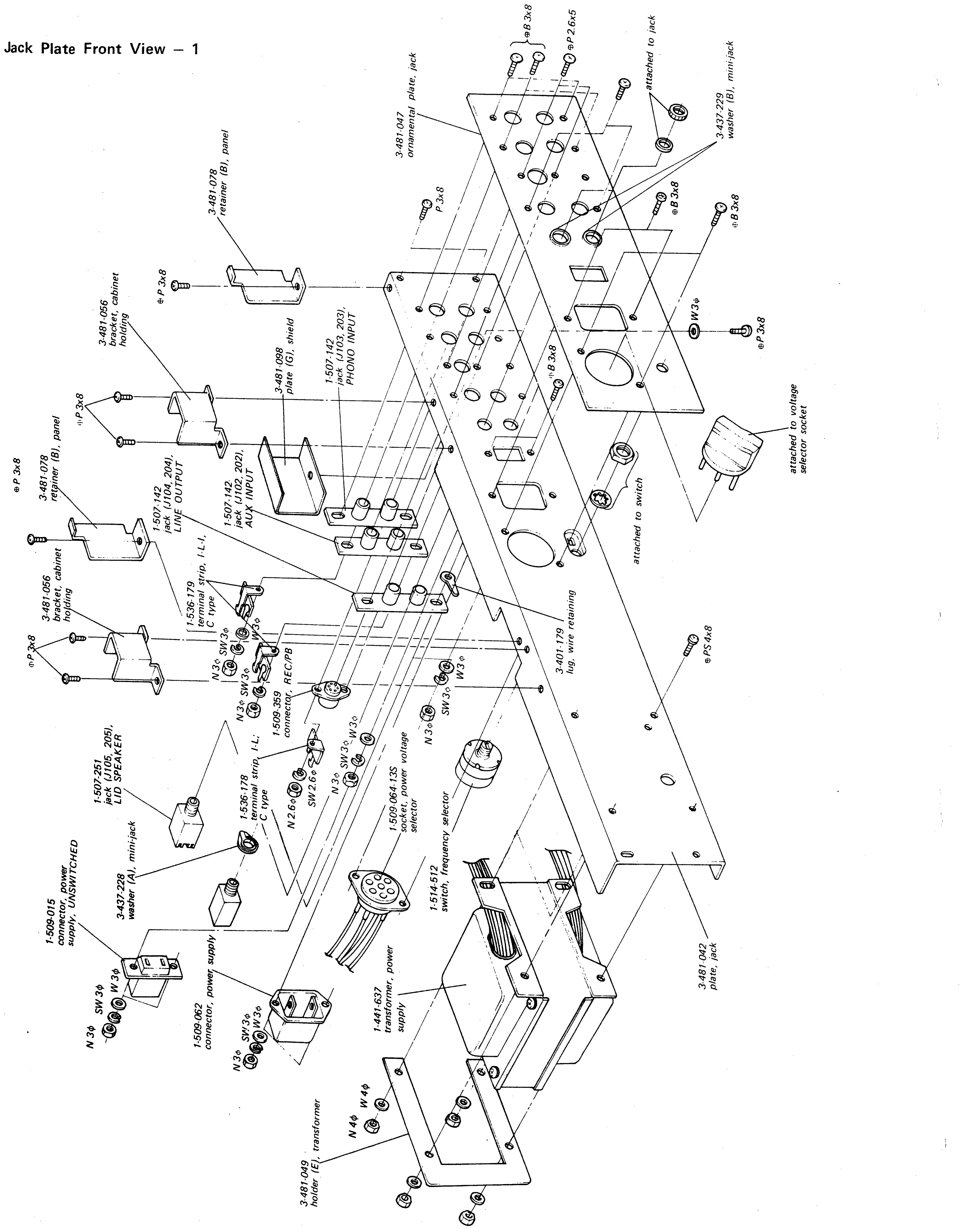
Parts marked with ☆ are included in the head cover ass'y (X-34600-08).
Parts marked with △ are included in the reel panel ass'y (X-34810-07).
Parts marked with ● are included in the control panel ass'y (X-34810-08).
Parts marked with □ are included in the complete cabinet ass'y (X-34810-01).

Cabinet Lid Top View

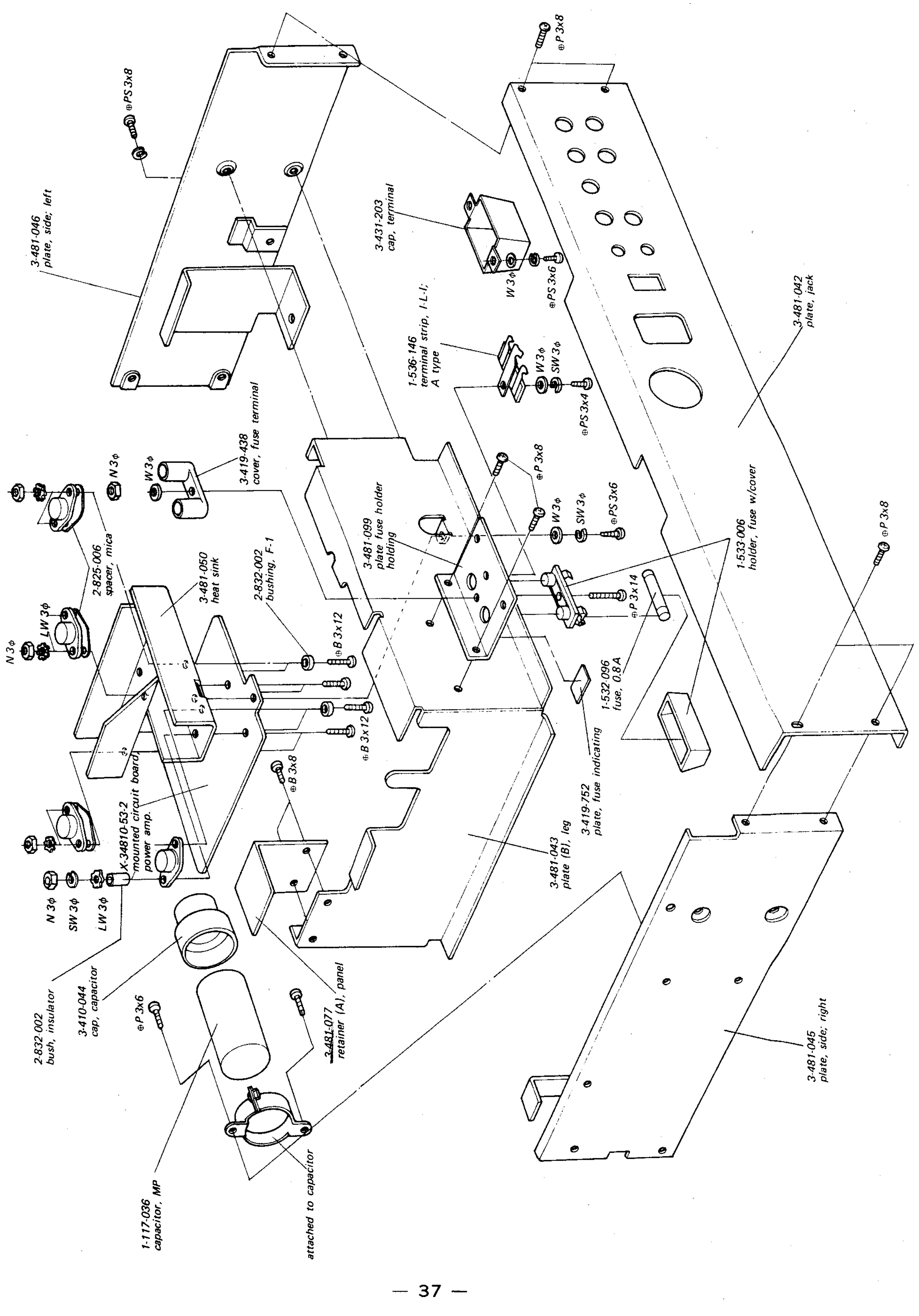

○ 3-701-056-21 emblem, SONY
SONY
3-701-048-08 screw
○ 3-701-048-04 screw
○ 3-481-017 net, cabinet lid
○ 3-701-048-08 screw
○ 3-481-016 cloth, speaker
○ 3-481-014 baffle-board, cabinet lid
○ X-34810-05 baffle-board ass'y, cabinet lid; right
○ X-34810-06 baffle-board ass'y, cabinet lid; left
W 3φ
SW 3φ
N 3φ
○ 3-403-724 stopper, rubber foot
○ 0-051-263 foot, rubber
⊕K 2.7x10
○ 3-418-188 hinge, detachable
○ 3-481-011 clamper, hinge holding
○ 3-481-010 lid, cabinet; right
○ 3-481-013 lid, cabinet; left
⊕T 4x25
W 3φ
SW 3φ
⊕K 2.7x10
N 3φ
○ X-34810-03 lid ass'y, cabinet; right
○ X-34810-04 lid ass'y, cabinet; left
1-502-175 speaker
3-481-092 baffle-board
W 3φ
N 3φ
3-481-041 cover, cabinet lid
W 3φ
● X-34510-40 pocket ass'y, accessory
⊕R 3.1x20
3-481-080 retainer, knob
● 3-426-508 spring
1-534-413-00 cord, speaker
⊕K 3.1x10
⊕R 3x8
● 3-451-174 button, accessory pocket lid
● 3-451-173 nail, accessory pocket
3-410-032 stopper, cord; small
⊕K 2.7x10

Parts marked with ○ are included in the complete cabinet ass'y (X-34810-01).
Parts marked with ● are included in the accessory pocket ass'y (X-34510-40).

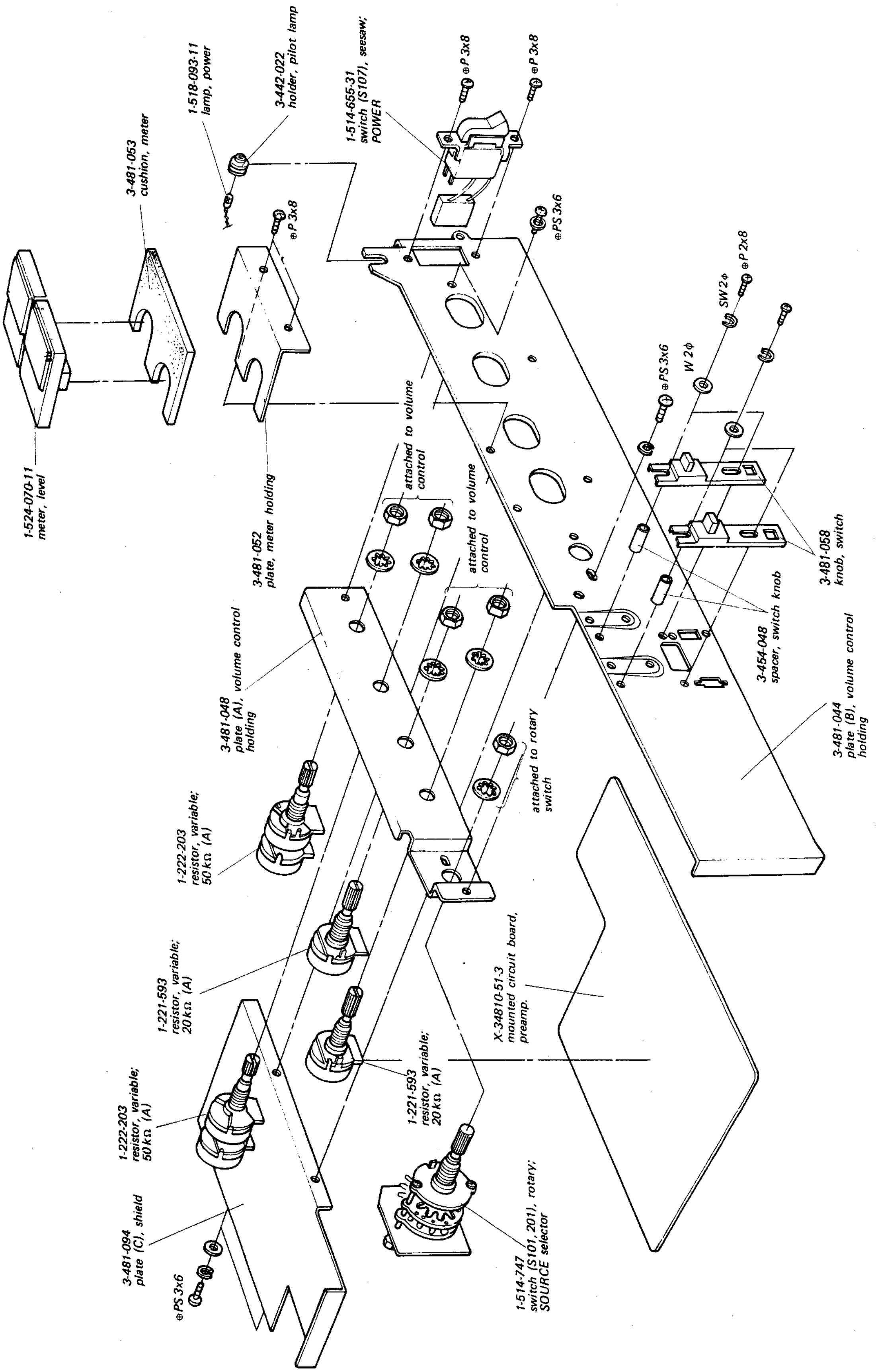
Jack Plate Front View — 1


⊕B 3x8
⊕P 2.6x5
attached to jack
3-437-229 washer (B), mini-jack
3-481-047 ornamental plate, jack
⊕B 3x8
⊕B 3x8
3-481-078 retainer (B), panel
P 3x8
⊕P 3x8
W 3φ
⊕P 3x8
3-481-056 bracket, cabinet holding
3-481-098 plate (G), shield
1-507-142 jack (J103, 203), PHONO INPUT
⊕B 3x8
⊕P 3x8
attached to voltage selector socket
⊕P 3x8
3-481-078 retainer (B), panel
1-507-142 jack (J104, 204), LINE OUTPUT
1-507-142 jack (J102, 202), AUX INPUT
attached to switch
1-536-179 terminal strip, I-L; C type
3-481-056 bracket, cabinet holding
⊕P 3x8
N 3φ
SW 3φ
W 3φ
REC/PB
1-509-359 connector
3-401-179 lug, wire retaining
⊕PS 4x8
W 3φ
SW 3φ
N 3φ
1-507-251 jack (J105, 205), LID SPEAKER
1-536-178 terminal strip, I-L; C type
W 3φ
SW 2.6φ
N 2.6φ
SW 3φ
N 3φ
1-509-064-135 socket, power voltage selector
3-437-228 washer (A), mini-jack
1-509-015 connector, power supply, UNSWITCHED
1-514-512 switch, frequency selector
W 3φ
SW 3φ
N 3φ
1-509-062 connector, power supply
W 3φ
SW 3φ
N 3φ
1-441-637 transformer, power supply
3-481-042 plate, jack
W 4φ
N 4φ
3-481-049 holder (E), transformer

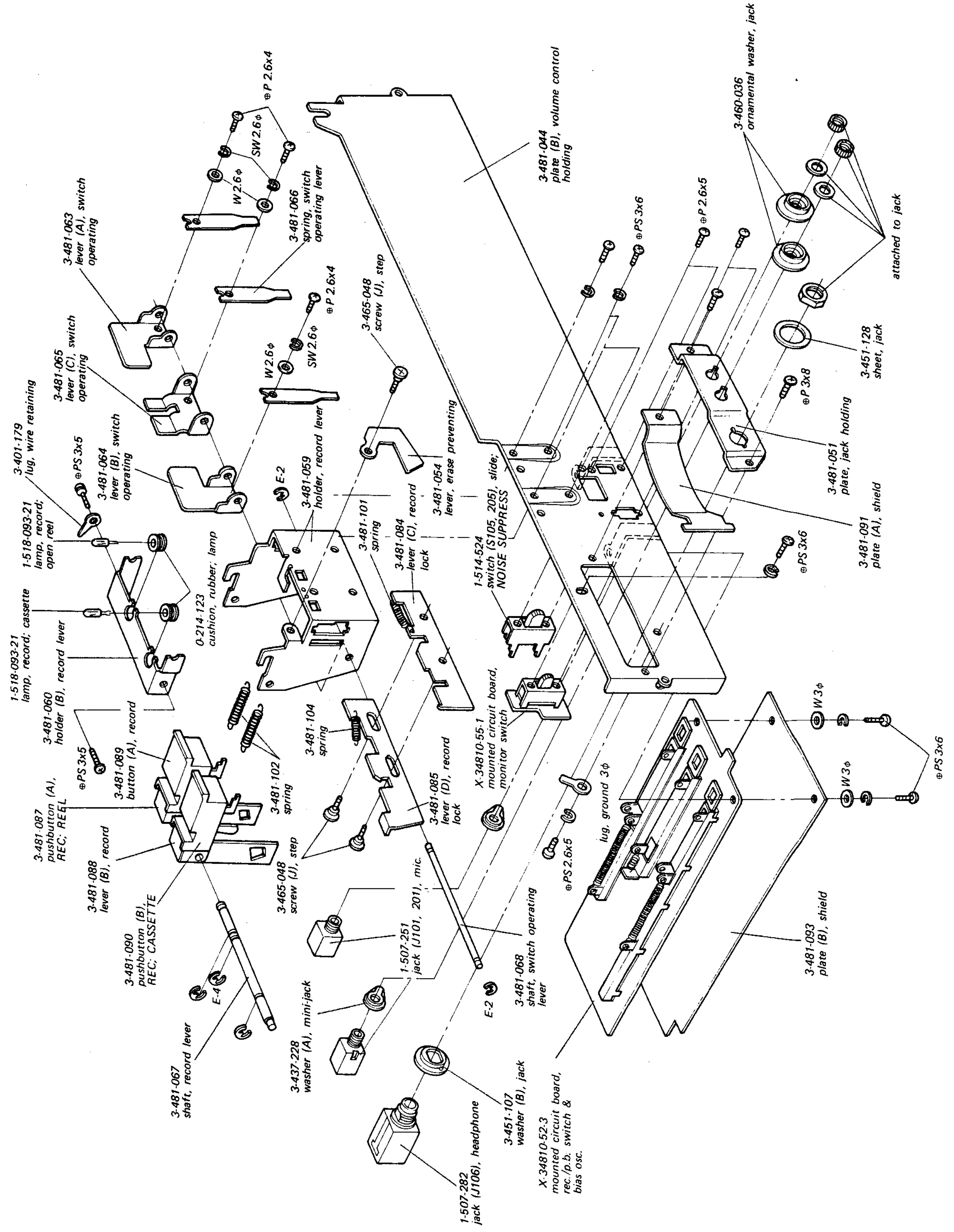
Jack Plate Front View – 2


⊕PS 3x8
3-481-046
plate, side; left
⊕P 3x8
3-431-203
cap, terminal
W 3φ
⊕PS 3x6
3-481-042
plate, jack
1-536-146
terminal strip, I-L-I;
A type
W 3φ
SW 3φ
⊕PS 3x4
N 3φ
W 3φ
3-419-438
cover, fuse terminal
⊕P 3x8
3-481-099
plate fuse holder
holding
W 3φ
SW 3φ
⊕PS 3x6
1-533-006
holder, fuse w/cover
⊕P 3x8
2-825-006
spacer, mica
N 3φ
LW 3φ
3-481-050
heat sink
2-832-002
bushing, F-1
⊕B 3x12
⊕P 3x14
1-532-096
fuse, 0.8A
⊕B 3x12
⊕B 3x8
X-34810-53-2
mounted circuit board
power amp.
3-419-752
plate, fuse indicating
3-481-043
plate (B), leg
N 3φ
SW 3φ
LW 3φ
2-832-002
bush, insulator
3-410-044
cap, capacitor
⊕P 3x6
3-481-077
retainer (A), panel
3-481-045
plate, side; right
1-117-036
capacitor, MP
attached to capacitor

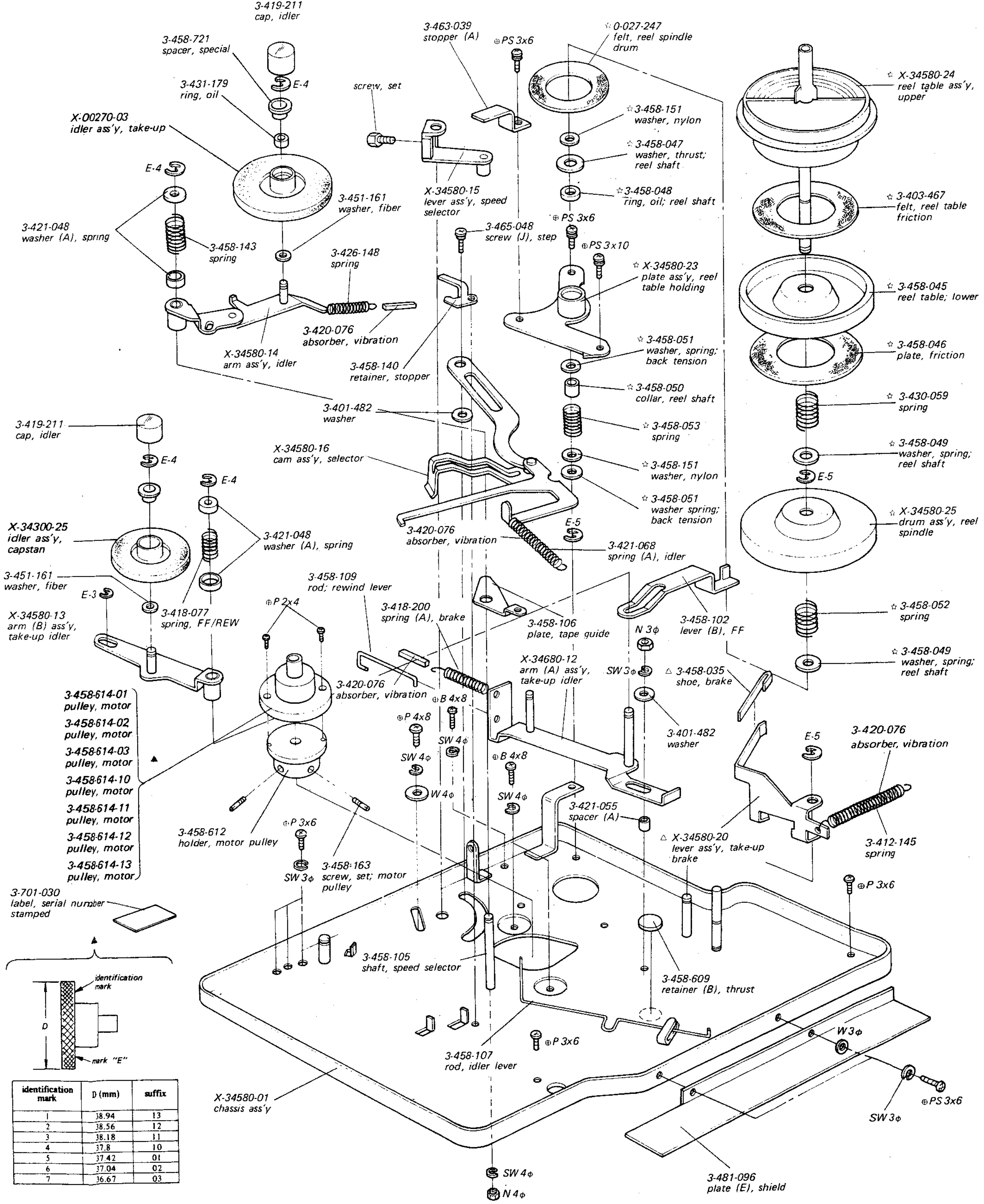
Volume Control Front View


1-524-070-11 meter, level
3-481-053 cushion, meter
1-518-093-11 lamp, power
3-442-022 holder, pilot lamp
1-514-655-31 switch (S107), seesaw; POWER
⊕P 3x8
⊕P 3x8
⊕P 3x8
⊕PS 3x6
⊕P 2x8
SW 2φ
W 2φ
⊕PS 3x6
3-481-052 plate, meter holding
attached to volume control
attached to volume control
3-481-058 knob, switch
3-454-048 spacer, switch knob
3-481-048 plate (A), volume control holding
3-481-044 plate (B), volume control holding
attached to rotary switch
1-222-203 resistor, variable; 50 kΩ (A)
1-221-593 resistor, variable; 20 kΩ (A)
X-34810-51-3 mounted circuit board, preamp.
1-221-593 resistor, variable; 20 kΩ (A)
1-222-203 resistor, variable; 50 kΩ (A)
3-481-094 plate (C), shield
⊕PS 3x6
1-514-747 switch (S101, 201), rotary; SOURCE selector

Operating Mechanism Top View


⊕P 2.6x4
SW 2.6φ
W 2.6φ
3-481-063 lever (A), switch operating
3-481-066 spring, switch operating lever
3-481-065 lever (C), switch operating
W 2.6φ
SW 2.6φ
⊕P 2.6x4
3-465-048 screw (J), step
3-401-179 lug, wire retaining
⊕PS 3x5
3-481-064 lever (B), switch operating
E-2
3-481-059 holder, record lever
3-481-054 lever, erase preventing
1-518-093-21 lamp, record; open reel
3-481-101 spring
3-481-084 lever (C), record lock
1-514-524 switch (S105, 205), slide; NOISE SUPPRESS
1-518-093-21 lamp, record; cassette
0-214-123 cushion, rubber; lamp
3-481-060 holder (B), record lever
⊕PS 3x5
3-481-089 button (A), record
3-481-087 pushbutton (A), REC; REEL
3-481-104 spring
3-481-102 spring
3-481-088 lever (B), record
3-481-085 lever (D), record lock
X-34810-55-1 mounted circuit board, monitor switch
3-465-048 screw (J), step
3-481-090 pushbutton (B), REC; CASSETTE
1-507-251 jack (J101, 201), mic.
3-481-068 shaft, switch operating lever
E-4
E-2
3-481-067 shaft, record lever
3-437-228 washer (A), mini-jack
3-451-107 washer (B), jack
1-507-282 jack (J106), headphone
X-34810-52-3 mounted circuit board, rec./p.b. switch & bias osc.
lug, ground 3φ
⊕PS 2.6x5
3-481-093 plate (B), shield
W 3φ
W 3φ
⊕PS 3x6
3-481-044 plate (B), volume control holding
⊕PS 3x6
⊕P 2.6x5
3-460-036 ornamental washer, jack
attached to jack
3-451-128 sheet, jack
⊕P 3x8
3-481-051 plate, jack holding
3-481-091 plate (A), shield
⊕PS 3x6

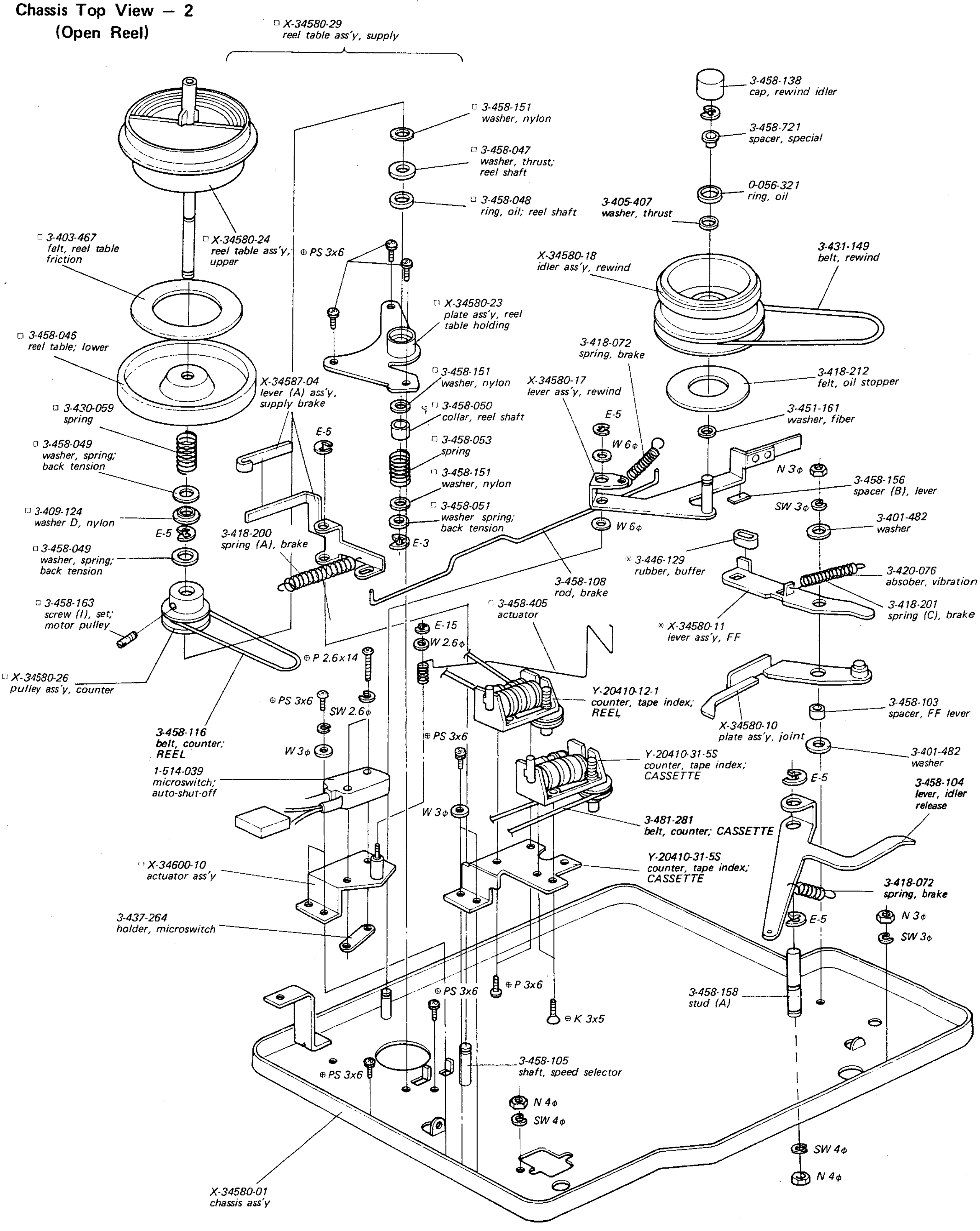
Chassis Top View — 1
(Open Reel)


☆ X-34580-28
reel table ass'y, take-up
3-419-211
cap, idler
3-458-721
spacer, special
E-4
3-431-179
ring, oil
X-00270-03
idler ass'y, take-up
E-4
3-421-048
washer (A), spring
3-458-143
spring
3-451-161
washer, fiber
3-426-148
spring
3-420-076
absorber, vibration
X-34580-14
arm ass'y, idler
screw, set
3-463-039
stopper (A)
⊕PS 3x6
X-34580-15
lever ass'y, speed
selector
3-465-048
screw (J), step
3-458-140
retainer, stopper
☆ 0-027-247
felt, reel spindle
drum
☆ 3-458-151
washer, nylon
☆ 3-458-047
washer, thrust;
reel shaft
☆ 3-458-048
ring, oil; reel shaft
⊕PS 3x6
⊕PS 3x10
☆ X-34580-23
plate ass'y, reel
table holding
☆ 3-458-051
washer, spring;
back tension
☆ 3-458-050
collar, reel shaft
☆ 3-458-053
spring
☆ 3-458-151
washer, nylon
☆ 3-458-051
washer spring;
back tension
☆ X-34580-24
reel table ass'y,
upper
☆ 3-403-467
felt, reel table
friction
☆ 3-458-045
reel table; lower
☆ 3-458-046
plate, friction
☆ 3-430-059
spring
☆ 3-458-049
washer, spring;
reel shaft
E-5
☆ X-34580-25
drum ass'y, reel
spindle
3-401-482
washer
3-419-211
cap, idler
E-4
E-4
X-34580-16
cam ass'y, selector
X-34300-25
idler ass'y,
capstan
3-421-048
washer (A), spring
3-420-076
absorber, vibration
E-5
3-421-068
spring (A), idler
3-451-161
washer, fiber
E-3
X-34580-13
arm (B) ass'y,
take-up idler
3-418-077
spring, FF/REW
3-458-109
rod; rewind lever
⊕P 2x4
3-418-200
spring (A), brake
3-458-106
plate, tape guide
3-458-102
lever (B), FF
N 3φ
☆ 3-458-052
spring
☆ 3-458-049
washer, spring;
reel shaft
X-34680-12
arm (A) ass'y,
take-up idler
SW 3φ
△ 3-458-035
shoe, brake
3-420-076
absorber, vibration
⊕B 4x8
⊕P 4x8
SW 4φ
SW 4φ
⊕B 4x8
W 4φ
SW 4φ
3-401-482
washer
E-5
3-420-076
absorber, vibration
3-458-614-01
pulley, motor
3-458-614-02
pulley, motor
3-458-614-03
pulley, motor
3-458-614-10
pulley, motor
3-458-614-11
pulley, motor
3-458-614-12
pulley, motor
3-458-614-13
pulley, motor
▲
3-421-055
spacer (A)
△ X-34580-20
lever ass'y, take-up
brake
3-412-145
spring
3-458-612
holder, motor pulley
⊕P 3x6
SW 3φ
3-458-163
screw, set; motor
pulley
⊕P 3x6
3-701-030
label, serial number
stamped
▲
3-458-105
shaft, speed selector
3-458-609
retainer (B), thrust
identification
mark
D
mark "E"
W 3φ
⊕P 3x6
3-458-107
rod, idler lever
X-34580-01
chassis ass'y
⊕PS 3x6
SW 3φ
SW 4φ
N 4φ
3-481-096
plate (E), shield

identification mark	D (mm)	suffix
1	38.94	13
2	38.56	12
3	38.18	11
4	37.8	10
5	37.42	01
6	37.04	02
7	36.67	03

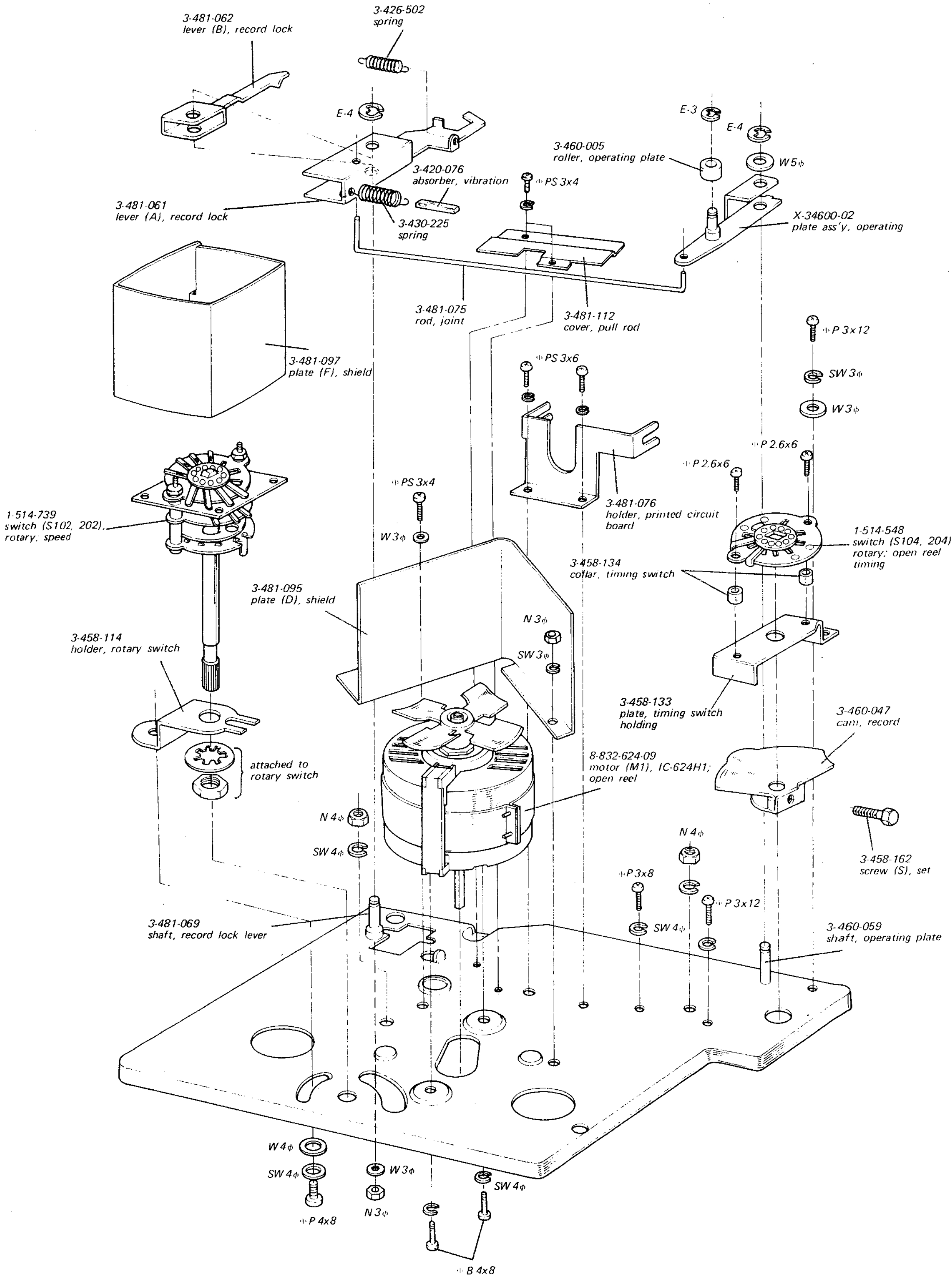
Parts marked with ☆ are included in the take-up reel table ass'y (X-34580-28).
Parts marked with △ are included in the take-up brake lever ass'y (X-34580-20).

Chassis Top View – 2
(Open Reel)

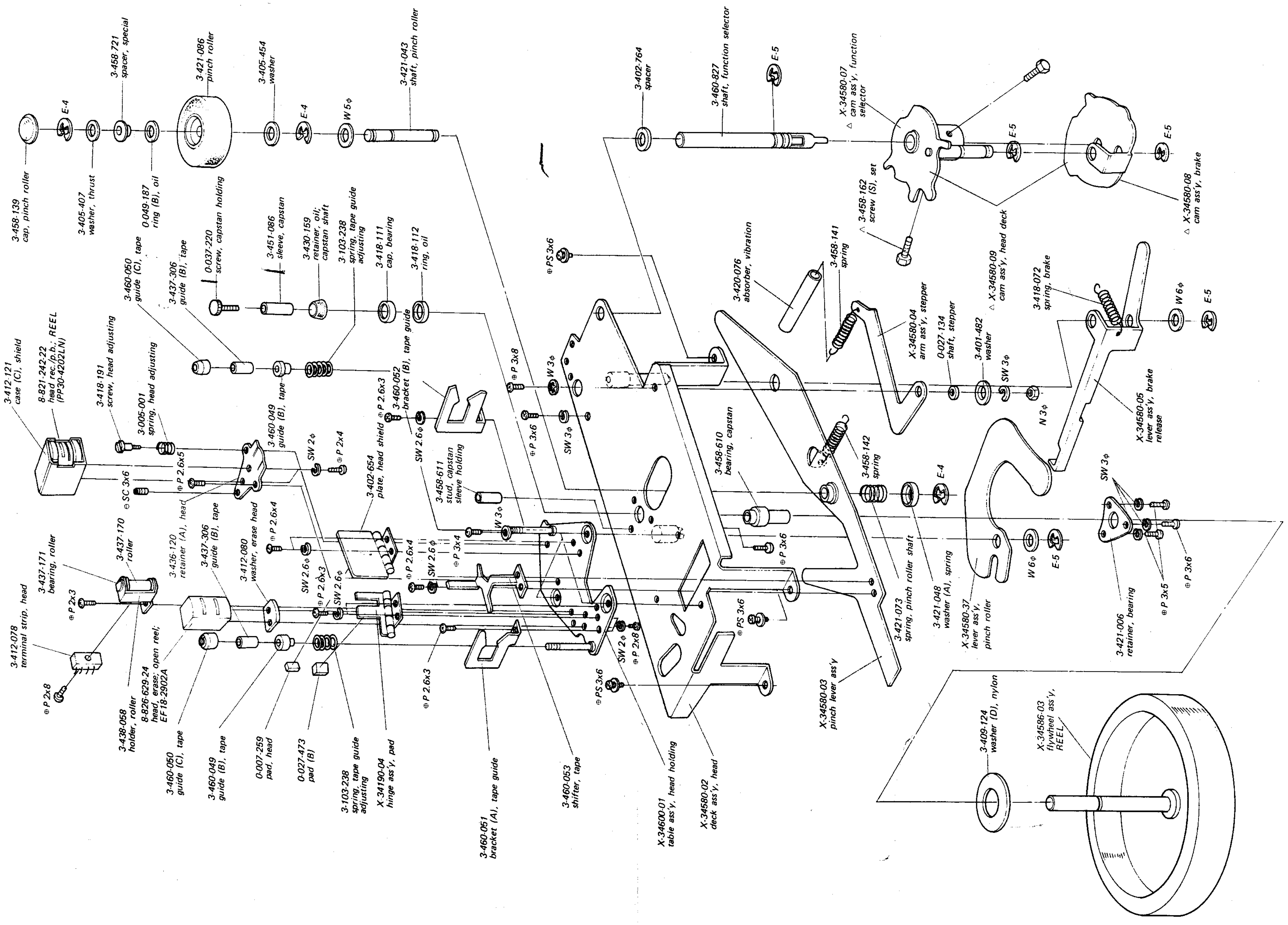

□ X-34580-29 reel table ass'y, supply
□ 3-458-151 washer, nylon
□ 3-458-047 washer, thrust; reel shaft
□ 3-458-048 ring, oil; reel shaft
3-458-138 cap, rewind idler
3-458-721 spacer, special
0-056-321 ring, oil
3-405-407 washer, thrust
□ 3-403-467 felt, reel table friction
□ X-34580-24 reel table ass'y, upper
⊕ PS 3x6
X-34580-18 idler ass'y, rewind
3-431-149 belt, rewind
□ X-34580-23 plate ass'y, reel table holding
□ 3-458-045 reel table; lower
3-418-072 spring, brake
□ 3-458-151 washer, nylon
X-34587-04 lever (A) ass'y, supply brake
X-34580-17 lever ass'y, rewind
3-418-212 felt, oil stopper
□ 3-430-059 spring
□ 3-458-050 collar, reel shaft
3-451-161 washer, fiber
E-5
E-5
□ 3-458-053 spring
□ 3-458-049 washer, spring; back tension
W 6φ
□ 3-458-151 washer, nylon
N 3φ
3-458-156 spacer (B), lever
□ 3-409-124 washer D, nylon
□ 3-458-051 washer spring; back tension
SW 3φ
3-401-482 washer
E-5
3-418-200 spring (A), brake
E-3
W 6φ
□ 3-458-049 washer, spring; back tension
※ 3-446-129 rubber, buffer
3-420-076 absober, vibration
3-458-108 rod, brake
□ 3-458-163 screw (I), set; motor pulley
○ 3-458-405 actuator
3-418-201 spring (C), brake
※ X-34580-11 lever ass'y, FF
E-15
W 2.6φ
□ X-34580-26 pulley ass'y, counter
⊕ P 2.6x14
Y-20410-12-1 counter, tape index; REEL
3-458-103 spacer, FF lever
⊕ PS 3x6
SW 2.6φ
X-34580-10 plate ass'y, joint
3-458-116 belt, counter; REEL
⊕ PS 3x6
3-401-482 washer
W 3φ
Y-20410-31-5S counter, tape index; CASSETTE
E-5
1-514-039 microswitch; auto-shut-off
3-458-104 lever, idler release
W 3φ
3-481-281 belt, counter; CASSETTE
○ X-34600-10 actuator ass'y
Y-20410-31-5S counter, tape index; CASSETTE
3-418-072 spring, brake
N 3φ
SW 3φ
E-5
3-437-264 holder, microswitch
⊕ P 3x6
⊕ PS 3x6
3-458-158 stud (A)
⊕ K 3x5
3-458-105 shaft, speed selector
⊕ PS 3x6
N 4φ
SW 4φ
SW 4φ
N 4φ
X-34580-01 chassis ass'y

Parts marked with □ are included in the supply reel table ass'y (X-34580-29).
Parts marked with ○ are included in the actuator ass'y (X-34600-10).
Parts marked with ※ are included in the FF lever ass'y (X-34580-11).

Chassis Bottom View
(Open Reel)

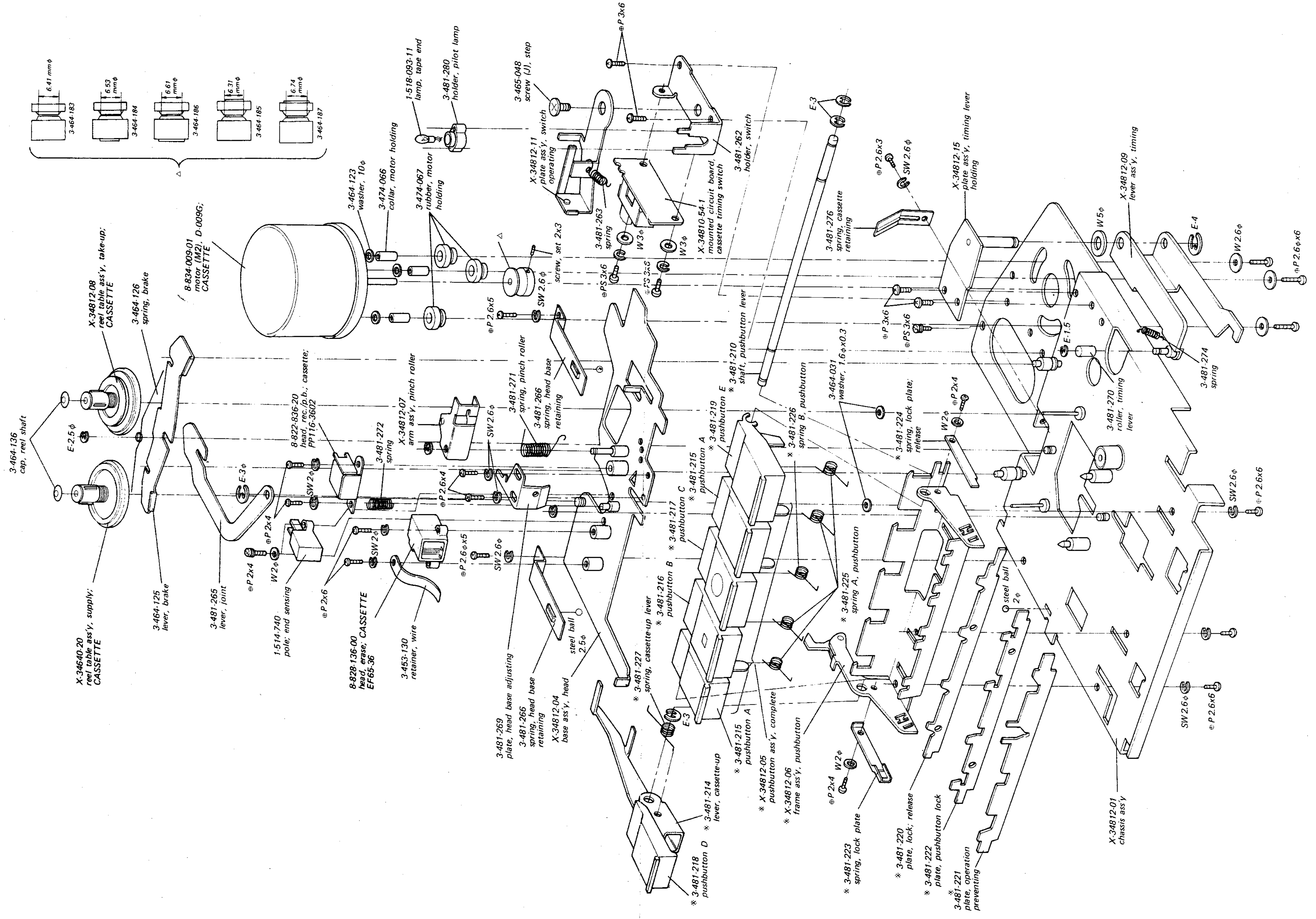

3-481-062
lever (B), record lock
3-426-502
spring
E-4
E-3
E-4
3-460-005
roller, operating plate
W5φ
3-420-076
absorber, vibration
φPS3x4
3-481-061
lever (A), record lock
3-430-225
spring
X-34600-02
plate ass'y, operating
3-481-075
rod, joint
3-481-112
cover, pull rod
φP3x12
3-481-097
plate (F), shield
φPS3x6
SW3φ
W3φ
φP2.6x6
φP2.6x6
φPS3x4
1-514-739
switch (S102, 202),
rotary, speed
W3φ
3-481-076
holder, printed circuit
board
1-514-548
switch (S104, 204),
rotary; open reel
timing
3-458-134
collar, timing switch
3-481-095
plate (D), shield
N3φ
SW3φ
3-458-114
holder, rotary switch
3-458-133
plate, timing switch
holding
3-460-047
cam, record
attached to
rotary switch
8-832-624-09
motor (M1), IC-624H1;
open reel
N4φ
SW4φ
N4φ
3-458-162
screw (S), set
φP3x8
φP3x12
SW4φ
3-481-069
shaft, record lock lever
3-460-059
shaft, operating plate
W4φ
SW4φ
φP4x8
W3φ
N3φ
SW4φ
φB4x8

Head Deck Top View
(Open Reel)


3-458-139 cap, pinch roller
E-4
3-405-407 washer, thrust
3-458-721 spacer, special
0-049-187 ring (B), oil
3-421-086 pinch roller
3-405-454 washer
E-4
W 5φ
3-421-043 shaft, pinch roller
3-402-764 spacer
3-460-827 shaft, function selector
E-5
△ X-34580-07 cam ass'y, function selector
E-5
E-5
△ X-34580-08 cam ass'y, brake
△ 3-458-162 screw (S), set
△ X-34580-09 cam ass'y, head deck
3-418-072 spring, brake
W 6φ
E-5
X-34580-05 lever ass'y, brake release
X-34580-04 arm ass'y, stepper
0-027-134 shaft, stepper
3-401-482 washer
SW 3φ
N 3φ
3-458-141 spring
3-420-076 absorber, vibration
⊕ PS 3x6
3-460-050 guide (C), tape
3-437-306 guide (B), tape
0-037-220 screw, capstan holding
3-451-086 sleeve, capstan
3-430-159 retainer, oil; capstan shaft
3-103-238 spring, tape guide adjusting
3-418-111 cap, bearing
3-418-112 ring, oil
3-412-121 case (C), shield
8-821-242-22 head rec./p.b.; REEL (PP30-4202LN)
3-418-191 screw, head adjusting
3-005-001 spring, head adjusting
3-460-049 guide (B), tape
SW 2φ
⊕ P 2x4
⊕ P 2.6x5
⊖ SC 3x6
3-402-654 plate, head shield
⊕ P 2.6x3
3-460-052 bracket (B), tape guide
SW 2.6φ
⊕ P 3x8
W 3φ
⊕ P 3x6
SW 3φ
3-458-611 stud, capstan sleeve holding
W 3φ
⊕ P 3x4
SW 2.6φ
⊕ P 2.6x4
3-458-610 bearing, capstan
3-458-142 spring
E-4
⊕ P 3x6
⊕ PS 3x6
3-421-073 spring, pinch roller shaft
3-421-048 washer (A), spring
X-34580-37 lever ass'y, pinch roller
W 6φ
E-5
SW 3φ
3-421-006 retainer, bearing
⊕ P 3x5
⊕ P 3x6
X-34580-03 pinch lever ass'y
3-437-170 roller
3-437-171 bearing, roller
⊕ P 2x3
3-412-078 terminal strip, head
⊕ P 2x8
3-438-058 holder, roller
8-826-629-24 head, erase; open reel; EF18-2902A
3-436-120 retainer (A), head
3-437-306 guide (B), tape
3-412-080 washer, erase head
⊕ P 2.6x4
SW 2.6φ
⊕ P 2.6x3
SW 2.6φ
3-460-050 guide (C), tape
3-460-049 guide (B), tape
0-007-259 pad, head
0-027-473 pad (B)
3-103-238 spring, tape guide adjusting
X-34190-04 hinge ass'y, pad
⊕ P 2.6x3
3-460-051 bracket (A), tape guide
3-460-053 shifter, tape
SW 2φ
⊕ P 2x8
⊕ PS 3x6
X-34600-01 table ass'y, head holding
X-34580-02 deck ass'y, head
3-409-124 washer (D), nylon
X-34586-03 flywheel ass'y, REEL

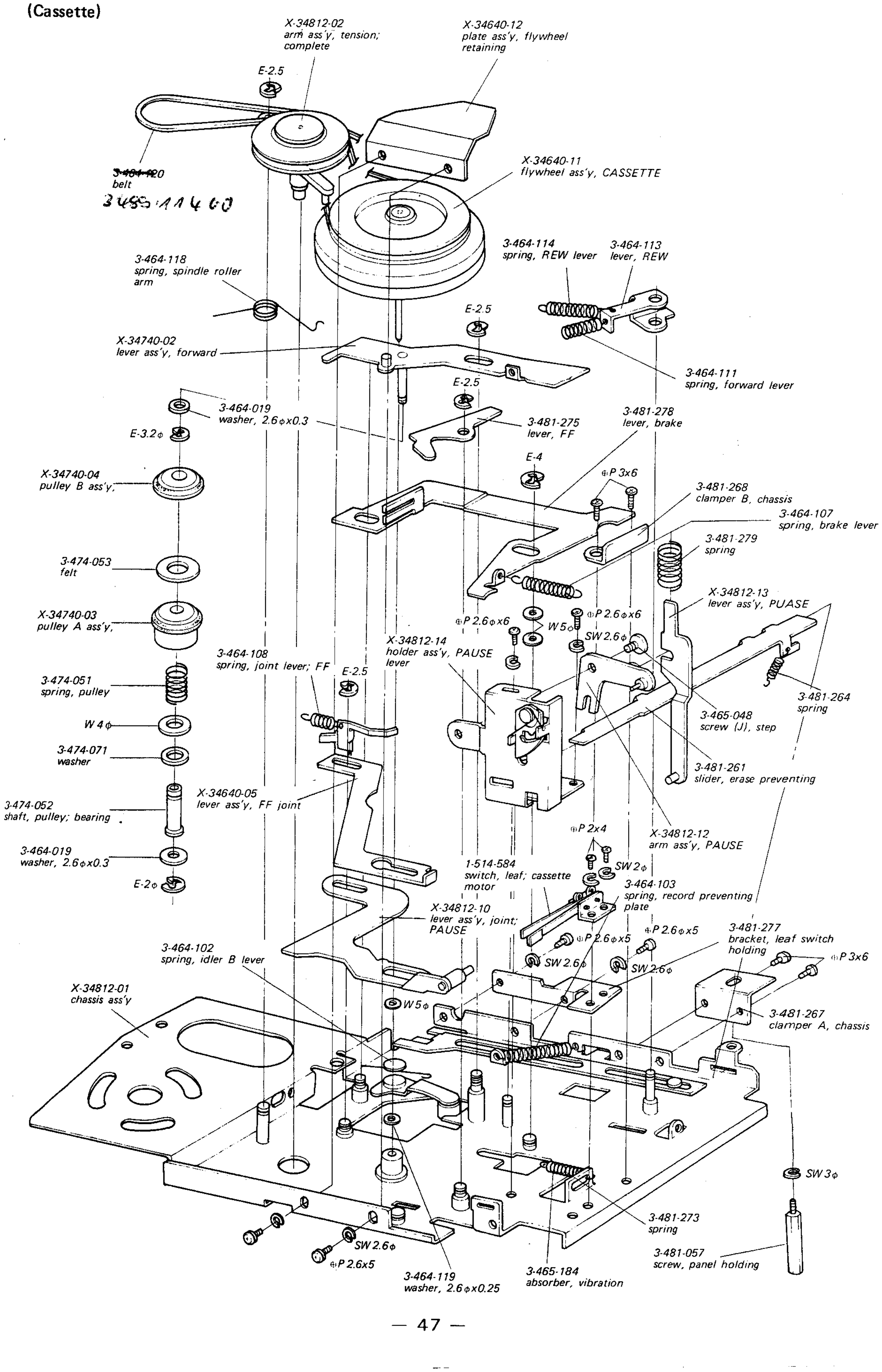
Parts marked with △ are included in the head deck cam ass'y (X-34580-09).

Chassis Top View
(Cassette)

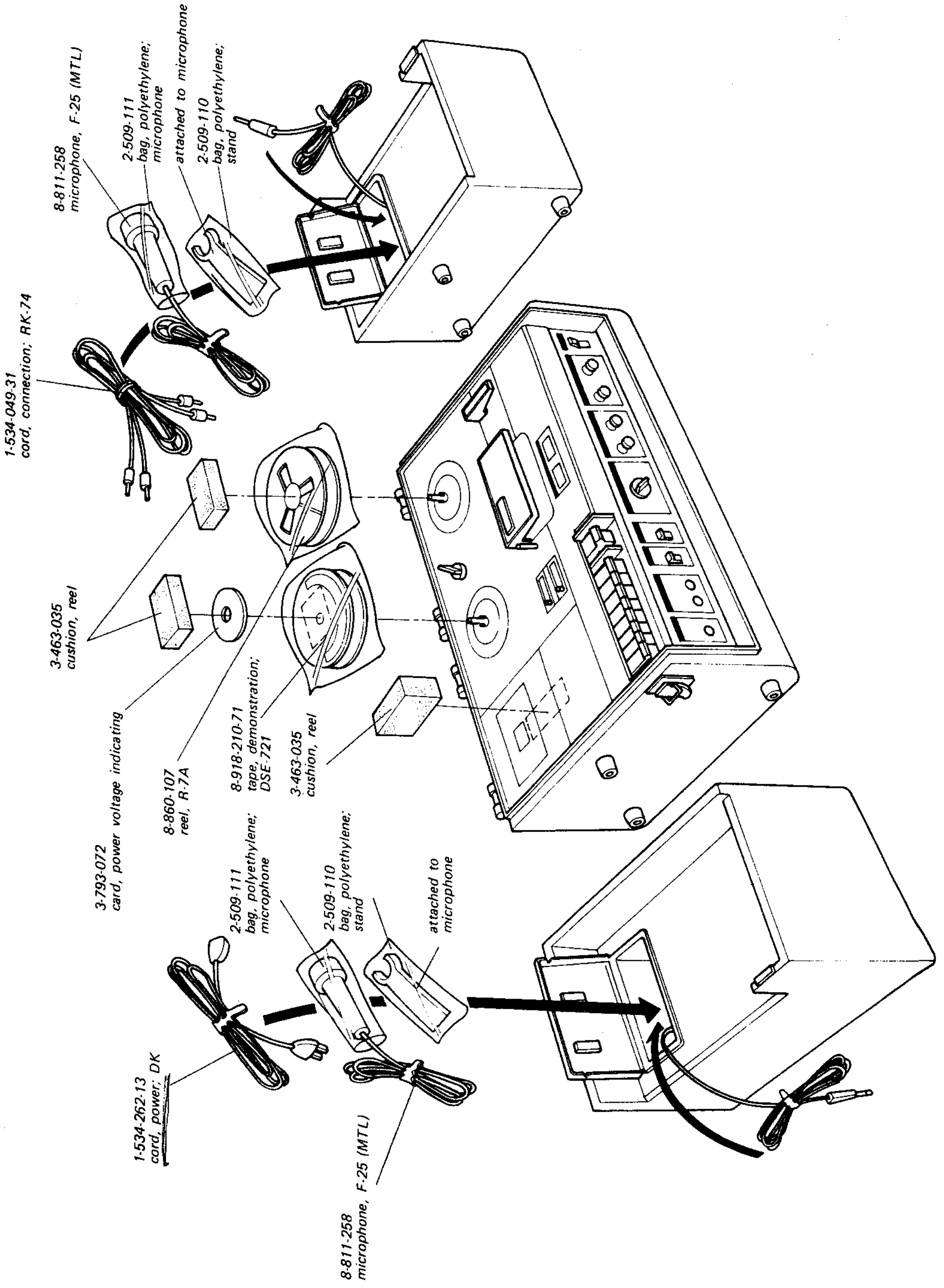

6.41 mmφ
3-464-183
6.53 mmφ
3-464-184
6.61 mmφ
3-464-186
6.31 mmφ
3-464-185
6.74 mmφ
3-464-187
△
8-834-009-01 motor (M2), D-009G; CASSETTE
3-464-123 washer, 10φ
3-474-066 collar, motor holding
3-474-067 rubber, motor holding
1-518-093-11 lamp, tape end
3-481-280 holder, pilot lamp
3-465-048 screw (J), step
X-34812-11 plate ass'y, switch operating
⊕P 3x6
3-481-263 spring
W3φ
W3φ
⊕PS 3x6
⊕P 3x6
X-34810-54-1 mounted circuit board, cassette timing switch
3-481-262 holder, switch
E-3
screw, set 2x3
SW 2.6φ
⊕P 2.6x5
X-34812-08 reel table ass'y, take-up; CASSETTE
3-464-126 spring, brake
3-464-136 cap, reel shaft
E-2.5φ
X-34640-20 reel table ass'y, supply; CASSETTE
3-464-125 lever, brake
3-481-265 lever, joint
E-3φ
SW 2φ
⊕P 2x4
W 2φ
⊕P 2x4
1-514-740 pole, end sensing
⊕P 2x6
SW 2φ
8-828-136-00 head, erase, CASSETTE EF65-36
3-453-130 retainer, wire
8-822-836-20 head, rec/pb, cassette; PP116-3602
3-481-272 spring
X-34812-07 arm ass'y, pinch roller
3-481-271 spring, pinch roller
3-481-266 spring, head base retaining
SW 2.6φ
⊕P 2.6x4
⊕P 2.6φx5
SW 2.6φ
3-481-269 plate, head base adjusting
3-481-266 spring, head base retaining
X-34812-04 base ass'y, head
steel ball 2.5φ
※ 3-481-227 spring, cassette-up lever
E-3
※ 3-481-214 lever, cassette-up
※ 3-481-218 pushbutton D
※ 3-481-216 pushbutton B
※ 3-481-217 pushbutton C
※ 3-481-215 pushbutton A
※ 3-481-219 pushbutton E
3-481-210 shaft, pushbutton lever
※ 3-481-226 spring B, pushbutton
※ 3-481-215 pushbutton A
※ X-34812-05 pushbutton ass'y, complete
※ X-34812-06 frame ass'y, pushbutton
※ 3-481-225 spring A, pushbutton
3-481-276 spring, cassette retaining
⊕P 3x6
⊕PS 3x6
3-464-031 washer, 1.6φx0.3
⊕P 2.6x3
SW 2.6φ
X-34812-15 plate ass'y, timing lever holding
X-34812-09 lever ass'y, timing
W 5φ
E-4
W 2.6φ
⊕P 2.6φx6
E-1.5
3-481-274 spring
3-481-270 roller, timing lever
W 2φ
⊕P 2x4
※ 3-481-224 spring, lock plate release
steel ball 2φ
SW 2.6φ
⊕P 2.6x6
SW 2.6φ
⊕P 2.6x6
X-34812-01 chassis ass'y
W 2φ
⊕P 2x4
※ 3-481-223 spring, lock plate
※ 3-481-220 plate, lock, release
※ 3-481-222 plate, pushbutton lock
※ 3-481-221 plate, operation preventing

Parts marked with ※ are included in the pushbutton ass'y (X-34812-05).

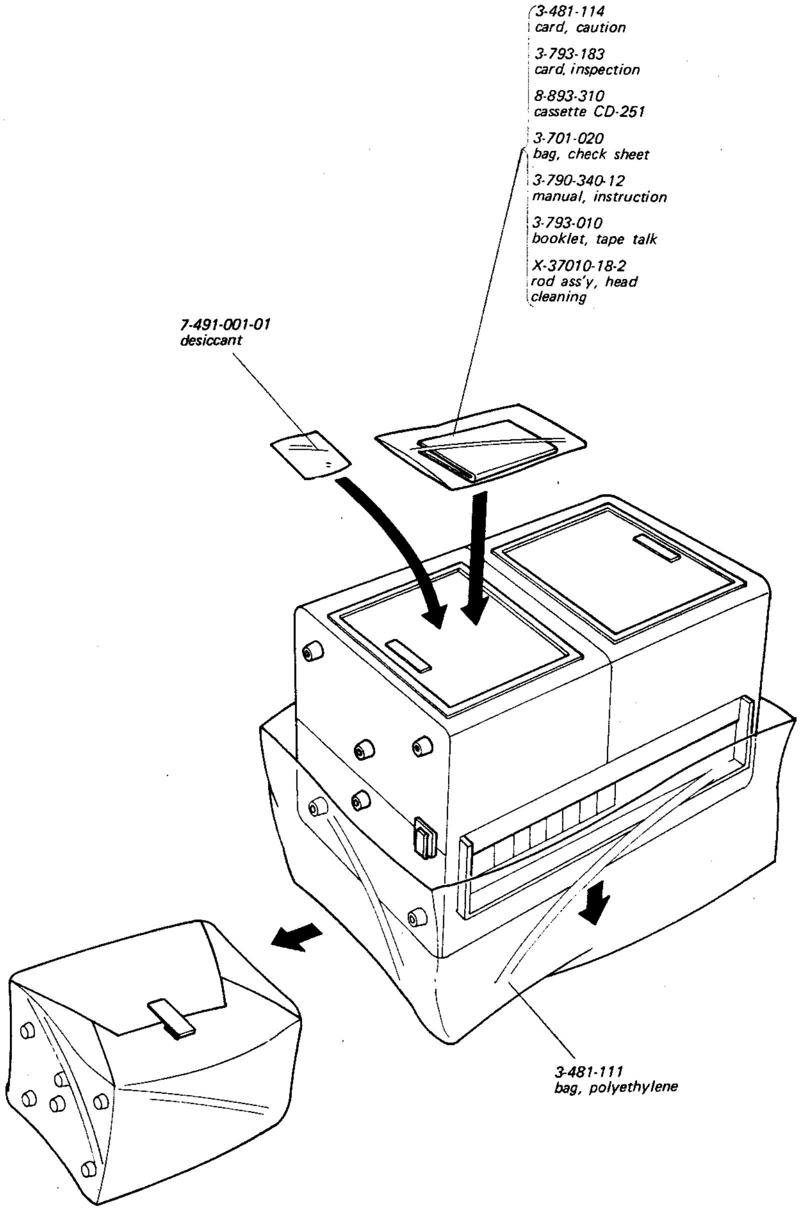
Chassis Bottom View
(Cassette)


X-34812-02
arm ass'y, tension; complete
X-34640-12
plate ass'y, flywheel retaining
E-2.5
~~3-464-1~~20
belt
3455 114 00
X-34640-11
flywheel ass'y, CASSETTE
3-464-114
spring, REW lever
3-464-113
lever, REW
3-464-118
spring, spindle roller arm
E-2.5
X-34740-02
lever ass'y, forward
3-464-111
spring, forward lever
E-2.5
3-464-019
washer, 2.6φx0.3
E-3.2φ
3-481-275
lever, FF
3-481-278
lever, brake
E-4
⊕P 3x6
X-34740-04
pulley B ass'y
3-481-268
clamper B, chassis
3-464-107
spring, brake lever
3-481-279
spring
3-474-053
felt
X-34812-13
lever ass'y, PUASE
X-34740-03
pulley A ass'y
⊕P 2.6φx6
W 5φ
⊕P 2.6φx6
SW 2.6φ
X-34812-14
holder ass'y, PAUSE lever
3-464-108
spring, joint lever; FF
E-2.5
3-474-051
spring, pulley
3-465-048
screw (J), step
3-481-264
spring
W 4φ
3-474-071
washer
3-481-261
slider, erase preventing
X-34640-05
lever ass'y, FF joint
3-474-052
shaft, pulley; bearing
⊕P 2x4
X-34812-12
arm ass'y, PAUSE
3-464-019
washer, 2.6φx0.3
1-514-584
switch, leaf; cassette motor
SW 2φ
E-2φ
3-464-103
spring, record preventing plate
X-34812-10
lever ass'y, joint; PAUSE
⊕P 2.6φx5
⊕P 2.6φx5
3-481-277
bracket, leaf switch holding
3-464-102
spring, idler B lever
SW 2.6φ
SW 2.6φ
⊕P 3x6
X-34812-01
chassis ass'y
W 5φ
3-481-267
clamper A, chassis
SW 3φ
3-481-273
spring
SW 2.6φ
⊕P 2.6x5
3-481-057
screw, panel holding
3-464-119
washer, 2.6φx0.25
3-465-184
absorber, vibration

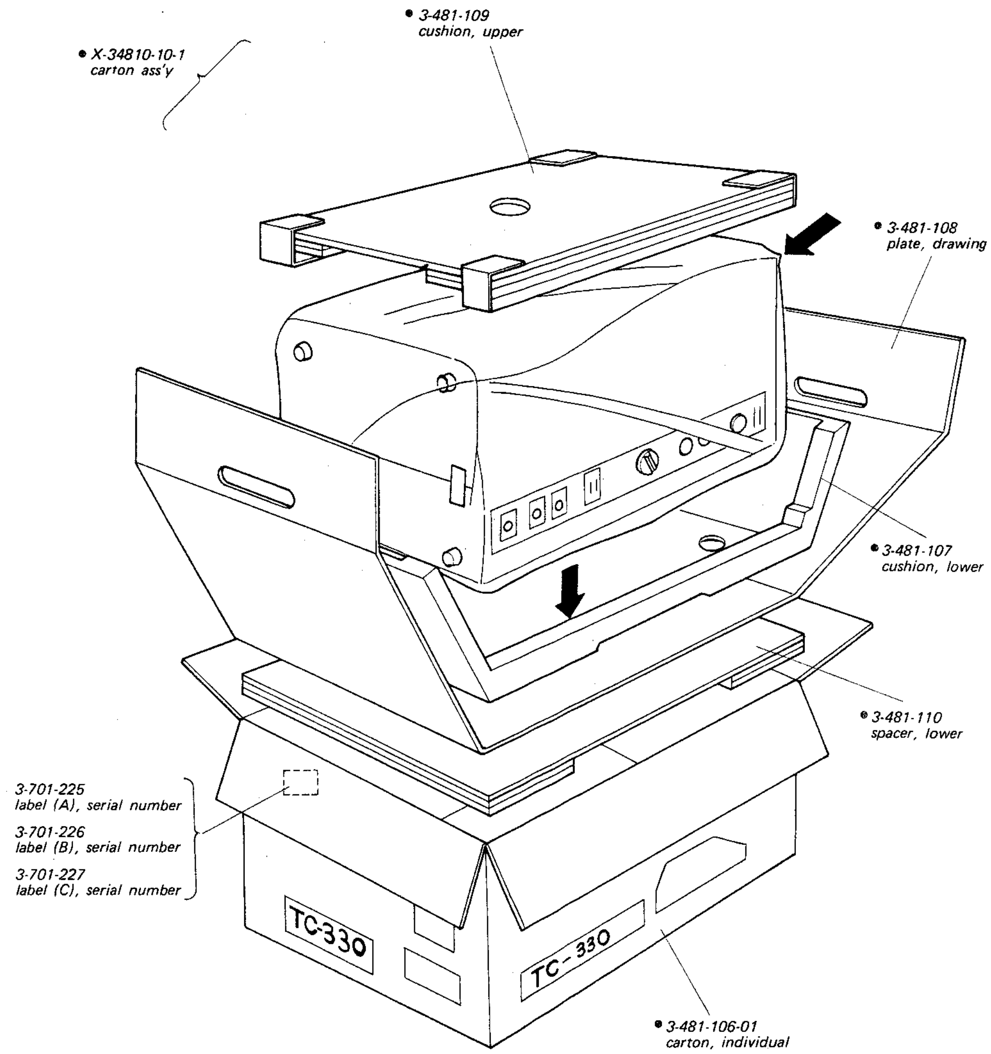
Packing — 1


8-811-258
microphone, F-25 (MTL)
2-509-111
bag, polyethylene;
microphone
attached to microphone
2-509-110
bag, polyethylene;
stand
1-534-049-31
cord, connection; RK-74
3-463-035
cushion, reel
3-793-072
card, power voltage indicating
8-860-107
reel, R-7A
8-918-210-71
tape, demonstration;
DSE-721
3-463-035
cushion, reel
2-509-111
bag, polyethylene;
microphone
2-509-110
bag, polyethylene;
stand
attached to
microphone
1-534-262-13
cord, power; DK
8-811-258
microphone, F-25 (MTL)

Packing — 2


3-481-114
card, caution
3-793-183
card, inspection
8-893-310
cassette CD-251
3-701-020
bag, check sheet
3-790-340-12
manual, instruction
3-793-010
booklet, tape talk
X-37010-18-2
rod ass'y, head cleaning
7-491-001-01
desiccant
3-481-111
bag, polyethylene

Packing — 3


● X-34810-10-1
carton ass'y
● 3-481-109
cushion, upper
● 3-481-108
plate, drawing
● 3-481-107
cushion, lower
● 3-481-110
spacer, lower
3-701-225
label (A), serial number
3-701-226
label (B), serial number
3-701-227
label (C), serial number
TC-330
TC-330
● 3-481-106-01
carton, individual

Parts marked with ● are included in carton ass'y (X-34810-10-1).

12. HARDWARES

(for REEL)

Screws

Part No.	*Description*
7-621-255-25	⊕P2 x 4
7-621-255-55	⊕P2 x 8
7-621-259-12	⊕P2.6 x 3
7-621-259-22	⊕P2.6 x 4
7-621-259-35	⊕P2.6 x 5
7-621-259-45	⊕P2.6 x 6
7-621-266-05	⊕P2.6 x 16
7-621-722-65	⊕R3 x 10, tapping
7-621-770-48	⊕B2.6 x 12
7-621-770-62	⊕B2.6 x 5
7-621-843-59	⊕R3.1 x 20, wood
7-621-852-38	⊕K2.7 x 10, wood
7-682-145-01	⊕P3 x 4
7-682-148-01	⊕P3 x 8
7-682-149-01	⊕P3 x 10
7-682-150-01	⊕P3 x 12
7-682-166-04	⊕P4 x 20
7-682-246-01	⊕K3 x 5
7-682-247-01	⊕K3 x 6
7-682-349-04	⊕RK3 x 10
7-682-352-04	⊕RK3 x 16
7-682-368-04	⊕RK4 x 30
7-682-548-05	⊕B3 x 8
7-682-548-14	⊕B3 x 8
7-682-570-05	⊕B4 x 40
7-682-645-01	⊕PS3 x 4
7-682-646-01	⊕PS3 x 5
7-682-647-01	⊕PS3 x 6
7-682-648-01	⊕PS3 x 8
7-682-649-01	⊕PS3 x 10
7-682-650-01	⊕PS3 x 12
7-682-661-01	⊕PS4 x 8
7-683-139-01	⊖SC3 x 5
7-683-143-01	⊖SC3 x 12
7-683-242-31	3 x 10, holding w/hexagonal hole
7-685-146-31	⊕P3 x 8, tapping

Nuts

Part No.	*Description*
7-622-408-05	3φ, speed
7-684-013-01	3φ
7-684-014-01	4φ
7-684-033-01	3φ, lock

Washers

Part No.	*Description*
7-623-105-12	2φ
7-623-107-02	2.6φ
7-623-107-12	2.6φ
7-623-108-12	3φ
7-623-108-20	3φ
7-623-110-02	4φ
7-623-110-12	4φ
7-623-112-18	5φ
7-623-112-19	5φ
7-623-113-12	6φ
7-623-113-18	6φ
7-623-113-22	6φ

Spring Washers

Part No.	*Description*
7-623-205-22	2φ
7-623-207-22	2.6φ
7-623-208-22	3φ
7-623-210-22	4φ

Lock Washers

Part No.	*Description*
7-623-308-04	3φ
7-623-408-04	3φ

Retaining Rings

Part No.	*Description*
7-624-104-01	E-2
7-624-106-01	E-3
7-624-108-01	E-4
7-624-109-01	E-5

(for CASSETTE)

Screws

Part No.	*Description*
7-621-255-25	⊕ P2 x 4
7-621-255-45	⊕ P2 x 6
7-621-259-15	⊕ P2.6 x 3
7-621-259-25	⊕ P2.6 x 4
7-621-259-35	⊕ P2.6 x 5
7-621-259-55	⊕ P2.6 x 8
7-621-710-27	⊖ SC2 x 3
7-682-647-01	⊕ PS3 x 6
7-685-145-31	⊕ P3 x 6, tapping

Washers

Part No.	*Description*
7-623-105-02	2φ
7-623-107-12	2.6φ
7-623-108-12	3φ
7-623-110-12	4φ
7-623-112-12	5φ
7-623-112-18	5φ

Spring Washers

Part No.	*Description*
7-623-205-22	2φ
7-623-207-22	2.6φ

Retaining Rings

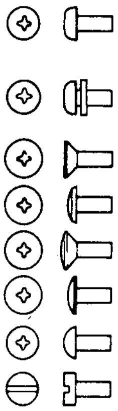
Part No.	*Description*
7-624-102-01	E-1.5
7-624-104-01	E-2
7-624-106-01	E-3
7-624-107-01	E-3.2
7-624-108-01	E-4
7-624-118-01	E-2.5

Steel Balls

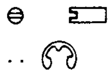
Part No.	*Description*
7-671-112-01	2φ
7-671-112-11	2.5φ

Hardware Nomenclature

P	Pan Head Screw
PS	Pan Head Screw with Spring Washer
K	Flat Countersunk Head Screw
B	Binding Head Screw
RK	Oval Countersunk Head Screw
T	Truss Head Screw
R	Round Head Screw
F	Flat Fillister Head Screw

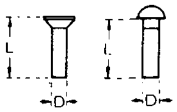


SC	Set Screw
E	Retaining Ring (E Washer)
W	Washer
SW	Spring Washer
LW	Lock Washer
N	Nut



– Example –

Type of Slot
⊕ P 3x10
Length in mm (L)
Diameter in mm (D)
Type of Head



13. NECESSARY ADJUSTMENT OR CHECKING AFTER PARTS REPLACEMENT OR REASSEMBLY

Replaced or Reassembled Parts	Necessary Adjustment or Checking
rec./p.b. head (REEL or CASSETTE)	tape path adjustment (page 12) closstalk check (page 16 & 17) head shield plate position adjustment (page 7) head azimuth adjustment (page 12 & 13) playback frequency response measurement (page 13) overall frequency response measurement (page 14) Demagnetize the head.
erase head (REEL or CASSETTE)	tape path adjustment (page 12) erase ratio measurement (page 17)
motor (REEL or CASSETTE)	motor pulley height adjustment (page 10) motor installing position adjustment (page 10)
idler (REEL)	take-up idler height adjustment (page 8) rewind idler position check (page 8)
pinch roller (CASSETTE)	pinch roller pressure adjustment (page 9)
flywheel (CASSETTE)	flywheel play adjustment (page 10) There should be no oil on the belt.
microswitch	actuator position adjustment (page 7)
reel table (REEL)	tape touch check (page 8)
rotating parts	Clean them with cloth or swab dampened with denatured alcohol.
tension pulley (CASSETTE)	torque measurement (page 9)

MEMO

SONY CORPORATION

Printed in Japan

Date	Ref. N°	Model
13 Mar 80	TC-00880	See list below Voir list ci-dessous ~~Siehe beiliegende Liste~~

Subject Standardization of fast forward/rewind idlers
Standardisation du galét FF/REW
Standardisierung der FF/REW-Zwischenräder

Model Modèle Modell	Former P/N N° de pièce ancien Alte Teilnummer	New P/N N° de pièce nouveau Neue Teilnummer	Price Prix Preis
TCM-757	X-3558-607-0 ✓	X-3563-902-0 ✓	Ⓒ ✓
TCM-767	"		
TCM-787	"		
CFM-31/31S/31L	"		
CFM-313S/313L	"		
CFM-323S	"		
CFM-333/333S	"		
CFS-55/55S/55L	"		
CFS-65/65S/65L	"		
CFS-71/71S:71L	X-3563-902-0 X		
CFS 85S	"		
TC-K1A	X-3558-607-0	X-3563-902-0	Ⓒ
TC-U2	"		
TC-K15	"		
HMK-44/44B	X-3558-607-0	X-3563-902-0	Ⓒ
HMK-119	"		
HMK-11	"		
HMK-33	"		

The Fast Forward/Rewind torque of the new idler (X-3563-902-0) is higher than the former one's (X-3558-607-03) by 10g.cm, because the new one is usable with AMS-models.

Le couple FF/REW du nouveau galet (X-3563-902-0) dépasse celui de l'ancien galet (X-3558-607-03) par 10g.cm, étant donné que le nouveau type sert pour les modèles AMS.

Das FF/REW Drehmoment des neuen Zwischenrades (X-3563-902-0) muss um 10g.cm höher sein als das des alten Rades (X-3558-607-03), weil der neue Typ für AMS-Modelle geeignet ist

Nachfolgende Ersatzteil-Nummern sind neu angelegt bzw. geändert worden. Bitte tragen Sie diese in das dazugehörige Service-Manual ein.

Gerät	Seite	ET-Nr. (alt)	ET-Nr. (neu)	Bezeichnung	Pr.-Gr.
TC-K45	23/B3	-	3-565-534-00	bracket, B, cass.	C
TC-K777	31		8-890-592-00	Messcass. CS-15	L
TC-U30	24	-	1-518-351-00	lamp (PL-301)	B
-	-	-	L-10000-50-0	System XL-33L	Z
CFS-F5L	-	-	S-31051-89-9	Fernbed. RM-23	Z
CFS-71S	30/B2	-	3-561-836-00	lever, FF-button	B
"	30/B3	-	3-563-919-00	lever, rew-butt.	B
KV-2204E	44/G3	-	4-317-720-00	bracket, F-board	E
M-201	18/A3	-	3-554-093-00	lock arm, A	B
M-201	18/B3	-	3-554-094-00	lock arm, B	B
PS-X55	22/C2	-	7-671-156-01	steelball, 4 mm	A
PS-4750	11	-	X-48141-06-0	support, hinge	B
ST-515	27/L-105	-	1-401-623-00	coil, FM-osc.	B
TA-5650	25	-	4-839-512-00	cover	C
T-555	32/IC606	9-941-008-87	9-943-010-28	IC TC-9129P	P
TC-K5	32/B2	-	X-35550-03-0	lever, A, rec.	B
TC-K60	36/B3	-	3-555-115-00	frame, cass. hold	C
TC-K96R	43/B3	-	X-35583-06-0	slider, rec.	B
TCM-600/B	17/B4	-	7-627-451-78	screw, K1,4x5, bl	I
TFM-C850W	18	1-224-617-00	1-224-616-11	res. 5K	C
TFM-C850W	18	1-224-616-00	1-224-617-00	res. 10K	C
TPS-L2	17/B4	3-499-042-00	3-480-136-00	belt, counter	B
TPS-L2	17/B4	3-480-136-00	3-499-042-00	belt, B	B
V-135	16/Q310	1-806-278-21	1-806-277-21	Tr. 2SD-895-E	B
V-135	16/Q311	1-806-274-21	1-806-273-21	Tr. 2SB-775-E	E